the(INTERNATIONAL) PET GAZETTE -- VOL1 NO5

The PET GAZETTE, Len Lindsay, Editor, 1929 Northport Dr, Room 6, Madison, WI 53704

NOTE: We are not connected with Commodore. We are learning everything the hard way too. We hope to hear from you.

B E W A R N E D

Just because a product is advertised or announced in this GAZETTE does not guaranty that it exists. Most products are announced before final production starts. Often unintentionaly production starts several months late.

We suggest that you never order a product until you have 1)seen it, 2)spoken with someone who has it, or3)seen it reviewed in the PET GAZETTE or another trusted magazine.

Better to be safe than sorry.

NOTE to all companies. If you are marketing software for the PET Computer - get it reviewed. All you need to do is send a review copy to us. If you are marketing accessories (hardware) for the PET Computer - get them reviewed. If the cost of a review copy is prohibitive, please contact us and we will see if special arrangements can be made. Contact: Len Lindsay, Editor, PET GAZETTE, 1929 Northport Dr, Room 6, Madison, WI 53704 Phone: (608)249-2666. Our budget does not allow us to return long distance calls except collect.

SPECIAL IMPORTANT NOTE:
When writing or calling any company -- Make sure to tell them you read about it in the PET GAZETTE. WHY?? Advertisers keep us going. If you like our service, please help us to keep & increase our advertisers. Best of all, you can read all the ads for most of the companies in one place -- here. Perfect to aid you in your decision.

The PET GAZETTE is the news and resource handbook for PET Computer Users. We have tried to be complete and also to remain at a personal level. You can call between 8am and 1pm daily.
PHONE: (608)249-2666

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The PET GAZETTE will remain a free publication. However, our printing & mailing costs are phenomenal. (There used to be 12 more pages in this issue, but after our first visit to the printer, we had to cut 12 pages) Please consider a donation to the GAZETTE to help us meet our bills. When writing to companies, mention the PET GAZETTE, and also that an ad only cost $50 for a FULL page. We would like to run every company's ads. Then our readers would see all the ads in ONE PLACE.(& the money helps) Programs available through the PET CASSETTE EXCHANGE are listed beginning on pg54. Please note that we will be attempting to sell the programs with the authors consent so that you can expand your program library faster. Use the form on page 63 to order.Programs exchanged are still free but we must charge $1 for the copying and handling time(they are individually copied)*****PLEASE return the inserted questionaire right away. Tell us the problems you have had with your PET.****Send us your article or info typed on regular typing paper, single spaced, 3/4" margins. We'll print it. *****Our apologies for this issue being late, but we did get it out in August. (Just barely)***Please send us your comments.*****

EDITORS RAMBLINGS & RUMORS

I'm glad you finally got this issue of the GAZETTE. I was sick for a whole week, and our PET was gone (sent back to Commodore) for a month, but here it is. I am trying my best to keep the GAZETTE personally oriented, thus you will find my hand written notes here and there. Please tell us how you like our format and style. This is your GAZETTE, let's keep it a good one.

Commodore's 2nd cassette is out now and is in stock at some dealers. It is a pity that it also does NOT have a counter on it. And at $99 it is a bit high priced. It may not even work on the older model PETs.

The PET PRINTER has gone up $100 in price and delivery moved back more than a month. We had ordered one before the price increase, but now are told that we must pay the price listed at delivery. Is this true?? Can someone write and tell us if this is a good business practice??

LOTS of exciting things are happening for the PET (though not via Commodore). We have some good reviews coming up next issue. These will include reviews on NETWORKS modem & RS 232 interface; MICROSIGNALs COMPUTONE music system; NEW ENGLAND ELECTRONICS dust cover, WAR GAMES software programs, and their MUSIC BOX package; JOYSTICKS from MICROTRONIX; more program reviews and hopefully more.

I have spoken with several companies who have had excellent response from the reviews in the GAZETTE. GREAT!! I am glad that PET users are wise buyers. Remember -- don't buy anything unless you are sure it exists. We don't print a review on anything unless it DOES exist.

CASSETTE TAPES were a real problem for awhile, but now there are several good sources. Do get C-10 tapes, they are very convenient and will save you lots of time as well as make it easy to group your tapes into some logical order. One letter we received said to check out BILLBOARD magazine for high quality cassette suppliers. We have heard from several additional sources now negative comments about Microsette Company and tapes. Some tapes we have from them are now beginning to make funny noises while loading. On the other hand however, AGFA tapes seem to be fantastic. DR DALEY has high quality blank tapes and just told me thatAGFA was good and he was going to be getting AGFA tape now. We have had bad luck with SCOTCH brand tapes. We have also heard that tapes from AB COMPUTERS tend to cause the tape heads to get dirty very fast. ***Write and tell us what tapes you like and don't like (and WHY!)

Did anyone out there get a DECENT MANUAL from COMMODORE yet?? Osborne & Assoc. will be publishing a PET User Manual this fall. Three cheers!!! They probably will beat Commodore. Also the PET PAPER is now selling a combination Manual and Cassette for only $40. That is a 170+ page manual, spiral bound and a C-90 tape with 20 interactive lessons (almost 400 full screens of vital information). TIS has 5 workbooks which are fantastic. They go over functions of the PET and show you tricks and short routines. They definately are a must.

Hidden inside this issue is a rumor (from Sol Libes) on the Commodore floppy disk unit. I had hoped that another company would have had a floppy disk for the PET by now. Who ever markets one will have a best seller on their hands.

Speaking of best sellers, how about a full sized keyboard that will simply plug into the PET and will operate simultaneously with the original one?? NEW ENGLAND ELECTRONICS is hoping to have a good keyboard for about $125. I hope all of you will write to them and tell them, YES you want one. If they hear from enough people they will begin production. ***Then I hope we can review it for you***

MORE→

I haven't seen them, but the PET SHACK advertises a set of SCHEMATICS for the PET as well as a listing of the ROM routines. Sounds great, hope someone tells me that they exist.

How would you like to hook a PRINTER up to your PET?? RIGHT NOW!! (without waiting ages for the Commodore unit) Get one of the RS 232 adapters (we use Connecticut Microcomputer's) and then hook up any printer that is RS 232 compatible. MICROTRONIX seems to be on the right path. They have several printers that will hook up with the PET. I just talked with them and they now have the software to drive the INTEGRAL DATA printer ($800) so that it will print FULL GRAPHICS, and it will not leave that thin blank line between each line like the PET PRINTER does (unless you want it too) Sounds great.

Speaking of MICROTRONIX, they now are in charge of the former DON ALAN ENTERPRISES. They are going to improve some of the programs and hopefully keep the user group going. They also have a CHESS program. The PET finally will be able to play CHESS.

How about the 4K PET?? Good question. It seems to be extinct, but I hope someone will write with an answer on it.

Are you a beginner? I mean rock bottom?? OR are you an educator or interested in educational uses of computers? CALCULATORS/COMPUTERS is just for you!! Great for beginners and teachers. Each issue features the PET as well as program listings and good articles.

**** QUESTIONAIRE RESPONSE ****
Not too many people filled out our last questionaire and returned it to us. But here are some results. - - - - - - - Most people subscribed to at least a couple different magazines. It took most people 3 months or more to receive the PET or 1 month or less. A surprising number got their unit in less than a month. Several areas were mentioned by alot of people. 1) Commodore poor public relations and help 2) problems -- have a questionaire on what problems people have had (such as a lot of load errors in CA.) 3) YES have some standards.

Speaking of STANDARDS most of the questionaires said YES things should be standardized. But a couple said no and had very good reasons. One of these is reprinted in this issue. Possibly it would be better to use the word "conventions" rather that "standards". What we are attempting is to make it easy to exchange programs knowing they will work. As Dr. Irving points out, standards block creativity. For example: MUSIC -- there are many ways to get music out of the PET. So why STANDARDIZE ONE method. So true. But for the users who wish to trade programs that have SOUND built into them, we should have ONE method or convention that works well to use. This is our aim. So once again you are encouraged to use the MUSIC CONVENTION as listed last issue. We hope to set up a convention for use with JOYSTICKS by next issue. Please write and tell us what would be the best way to use.

The questionaire also told us that everyone was interested in MANY different areas. Not too many people had purchased many accessories. Most mentioned an interest in printers and floppy disks as well as full sized keyboards and more memory.

Questionaires are hard to compose (at least hard to get a good one) If anyone is talented in this area please let us know right away, we would like to have you help devise our next questionaire.

****

If you need to call, the best time is now from 8am to 1pm (WISC time) The number is (608)249-2666.

This is your GAZETTE, we hope to get some articles from you for the next issue. The more people, the better. Then our readers get a wide variety of styles and many different viewpoints.

MORE →

AT LAST.....

ARESCO
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A PET™ TUTOR

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A bargain at $19.95

PET BASIC COMPLEAT, the 170+ page manual which complements the tutorial, is indexed for easy reference and review, as well as being spiral bound for ease of use. Each screen-full of information contained in the tutorial is reproduced!
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THE  PAPER

P. O. BOX 43

AUDUBON, PA. 19407

There are 2 other PET publications you should know about. Terry Laudereau is the editor of the ~~PET~~ PAPER. (Yes I had to cross out the word PET -- it seems that Commodore is very sensitive and does not want everyone using their name. Someone told me that they thought Radio Shack officials were telling the PET companies to quit using the name PET. Who knows?) Terry does a wonderful job with the PAPER. She has dug up quite a bit of information that all PET users should know about. It costs only $15 for 10 issues. And you get all the issues beginning with issue #1 so you don't miss any of the information in the first issues.

Gene Beals publishes PET User Notes. This includes alot of information that users send to him. Past issues have included listings for some good programs as well as tips on hardware and software. Only $5 for a year subscription. (about 6 issues). Worth getting.

In case you were wondering, listings of programs were done with our PET hooked up to a Teletype 43 using Connecticut Microcomputers RS 232 adapter. We were going to use their word processor to put together some of this issue but we had bad luck. First we used it alittle to get the "feel" of how it worked. Then a couple days later we decided to make a backup copy in case the original got wrecked. Wouldn't you know it, the PET ate up the first part of the tape. So be it. The lesson is: make your back up copy first, then use the program. We learned our lesson. (I hope)

There are many letters we get (over 50 letters a day usually) asking for a free subscription to the PET GAZETTE. Some of these letters are so messy that we can't even read the name and address. PLEASE print your name and address when writing to anyone for info.

ATTENTION -- is anyone working on an interface to video disc?? There is alot of potential with a video disc. You can store the whole encyclopedia Britanica about 50 times on one side of a "record" (size of an LP record)

It seems that our RENUMBER program in our exchange resequences the line numbers, but does not change the GOTOs or GOSUBS. Our automatic line numbering program is a very flexible program, its listing is in this issue. It uses a POKE to put some returns into the keyboard buffer and the computer then "hits return" for you. Type it in and try it, it is only about 5 lines long.

We have seen some really good articles and information in several other publications (including the ~~PET~~ PAPER and Amateur Computer Group of New Jersey NEWS) If the publications allow reprints we have reprinted them in this issue. A special thanks to the ~~PET~~ PAPER and ACG-NJ and SPHINX.

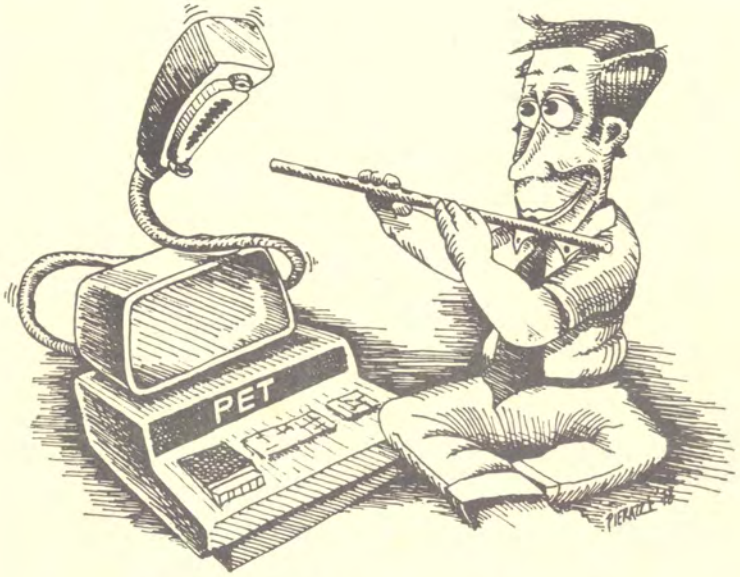
PLEASE, PLEASE do write to tell us if you have any different opinions regarding our reviews and articles. We are definately not experts here and can use your input. We will print your ideas, and information and not your address, unless you tell us to include your address. We need your feedback to keep a good newsletter going. This is your GAZETTE -- I hope we hear from you.

We are planning on publishing --THE BEST OF THE PET GAZETTE-- at the end of the year or so. This will include ALL reviews and peices of information from all the past GAZETTES. Since this will be much bigger and comprehensive, would you be willing to send donations in for it??? How shall we finance it??? All the PET companies out there take note!! Tell us if you would like your ad in the BEST of the PET GAZETTE.!!

Remember -- please tell us if you are having problems with any company.

PLEASE DO RETURN THE QUESTIONAIRE TO US RIGHT AWAYTell us questions to add to the next one!!

EVEN MORE →



Is the GPIB acting like a viper?

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M & E Associates is a Microcomputer Engineering consulting firm that specializes in GPIB IEEE-488-1975 bus designs, microcomputer systems, and data acquisition and control.

Since our start in 1976, we have consulted with Airco Temescal, American Sign and Indicator, Computer Products, Wintek Corporation, Commodore, and Siemens, to name just a few. Are you having a particular design problem? Are you having trouble getting on the bus? Let M & E assist you!

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MORE EDITORS RAMBLINGS AND RUMORS

It seems that alot of the July issues got lost in the mails. It was the first time we used our 3rd class mailing permit. We are going by 3rd class mail because the postage would break us otherwise.

PLEASE REMEMBER that the prices quoted are rounded to the nearest dollar most of the time. We use brochures received in the mail and announcements and ads in other publications to compile our list of resources. Although we try to be accurate, we can not guarrantee this information. Contact the source directly for up to date prices.

Permission is granted to photocopy this newsletter in part or in whole for any non commercial use. Reprints in other non profit publications are fine if they acknowledge the PET GAZETTE and list our address.

NOTE: WE will NOT copy any software that is copyrighted. Please tell us if we unknowingly have copyrighted material in our cassette exchange and it will be removed.

Back issues for #3 & #4 are still available in limited quantities at $1 each. Extra copies of the current issue and future issues are $1 each or only 50¢ each for 50 or more(plus postage).

A quick note on the ~~PET~~ PAPER software exchange -- the service is very good, and the tapes we received we all on separate tapes.

Please send us your comments on products you have ordered and/or received.

We are going to try to come up with a directory of schools using the PET, PET user groups, and PETdealers.

Your PET club is welcome to have your "newsletter" printed in the PET GAZETTE. Simply send your local news and meeting info typed and ready to go to the editor. Write for further details.

Did you notice the widely distributed Commodore announcement of the PET Printer had the image of the printer reversed. It appeared that the printer was printing from right to left with most of the text on the right side, flush right. Have no fears, the printer does not print right to left. It's output will be just like this page, print starting from the left margin. You can set it to do special printing such as centering and formatting if you wish. Please write to us if you have received your PET printer and tell us how it works. Scattered throughout this issue are sample outputs from the PET printer (remember they are reduced in size).

We have now received 2 letters with favorable comments on Microsette Co. We also have heard several negative comments. If you have purchased C-10 casettes from them PLEASE write and tell us your experiences. Next issue we hope to have the final story on it.

Scelbi Computer Consulting Inc. just announced their SCELBITAPE for the PET. For $8 you get on one tape a)Auto Box game b)Space Capture c)Hangman d)Perpetual Calendar. Their address is at the end of our list. They have been in the personal computer business since the first Altair and we welcome them to the PET computer field.

IMPORTANT -- As you may have guessed, its your kind donations that allow us to keep the PET GAZETTE a free publication. Next issue we expect to have over 2000 names to send it to, so our pages are increasing, and so are the number of copies we have to print. Also always mention to any companies you write to that you read about them in the PET GAZETTE. The more advertisers we have the better, for the money (yes it is only $50 for a full page ad) and for you the readers, who can see all the PET ads in one place, ... HERE.

So take good care, see you in October. (This has to count for September too since it is so late in going out...sorry bout that)

-8-

**********PLEASE WRITE *** SEND US THE QUESTIONAIRE **IT IS NEEDED***

P E T S T A N D A R D S

To be able to exchange programs and listings that are fully compatible and easily understood we hope you will follow these standards. (actually these are conventions and guidelines)

•1) Start your program with line 100.

Starting with line 100 serves two purposes. It allows 100 free lines for identification and useful routines. It also will allow a user an easy way to return to a program in case he/she jumps out of the program accidentally. (by hitting return with no data for an input statement etc) The user would simply type in GOTO 100 and would be back in the program.

•2) Identify the program.

Use lines 10-19 for identification purposes. A suggested format is:
```
10 PRINT "PROGRAM NAME"
12 PRINT "AUTHOR - DATE"
14 PRINT "LIST THE BOOK OR MAGAZINE TAKEN FROM, IF ANY/OR COPYRIGHT INFO"
16 PRINT "MEMORY NEEDED __K"
```

•3) Include instructions as part of the program.

Instructions on paper are great, but may get lost. Best to have both, but do make sure enough instructions are part of the program so that it will be useful without the written instructions.

•4) ALLOW the User to read your identification/instructions.

Include a routine such as the following:
```
40 PRINT "HIT ANY KEY TO CONTINUE"
42 GET A$:IF A$="" THEN GOTO 42
```
As soon as any key is pressed the program will continue.

•5) Put the PET into the correct mode (Graphics or lower case)

Don't assume that the PET will be in the graphics mode. Always start your program by using one of the following (which ever is correct for your application)
```
50 POKE 59468, 12:REM GRAPHICS
    or
50 POKE 59468,14: REM lower case
```

•6) Clear the screen before starting.

Use a line such as:
```
60 PRINT"(CLR)":REM CLEAR SCREEN
```

•7) Include documentation within your program itself.

Include alot of REMarks in your program. It will really help the next person understand what is going on. (You will be surprised how much it will help you with your own programs)

•8) Use lower case whenever you have alot of text to display.

It is much easier to read a screen of text in lower case rather than all capital letters. The user will appreciate reading lower case (and will be impressed with your good programming)

•9) Label each subroutine or main section of the program.

To make it easy to spot the beginning of each section of your program begin with a line with alot of asterisks (*) such as:
```
430 REM ********** PRINT THE HUGE LETTER **********
```

•10) Use line numbers increasing by 10 each new line.

Later on you may want to add a line or two and by leaving 9 lines in between every 2 program lines you allow for future additions.

MORE→

•11) Indent each FOR...NEXT loop

This is a good programming technique. Remember that the PET erases extra spaces between the line number and the beginning of your statement. To be able to indent simply use colons (:). Example:

```
560 REM *********** SHOW ADDITION WITH THE SUM ***********
570 FOR A=1 TO 4:REM Loop for the first number
580 :FOR B=1 TO 6:REM Loop for the second number
590 ::PRINT A;" PLUS ";B;" EQUALS ";A+B
600 ::PRINT : REM print one blank line
610 :NEXT B:REM Next second number
620 NEXT A:REM Next first number
```

By indenting, as above, you can see if you end every loop, and in the correct order. To use this method just indent 1 space for each FOR used and continue this until you encounter the NEXT. Don't indent that space on the NEXT line. You are indenting ONE space INSIDE each for next loop.
Did you notice how the REMarks let know exactly what was happening in the program??? Get into the good habit of using remarks.

CONVENTIONS FOR LISTING GRAPHIC AND SPECIAL KEYS

We believe that the conventions proposed by PEOPLES COMPUTERS magazine are very good. They require no memorization of special symbols and can be typed on a normal typwriter without backspacing to "double stike" such as ⁄ takes two stokes, one capital S and a backspace to stike the /. We should all agree on something NOW before everyone does it different and everyone gets confused.

•12) Use key cap identifiers if possible.

By using the letter/letters printed on the key there is nothing to memorize.

•13) Use CAPITAL letters and enclose them in square brackets.

This method allows each to be typed with any typewriter or printer. Use regular parenthesis if square brackets are not available.

•14) Use a number before an item to tell how many times it should be repeated.

This saves alot of typing. Keep the number inside the brackets also.

•15) Enclose consecutive special keys within the same brackets separated by commas.

This is much easier to read and eliminates typing brackets all the time.

•16) For graphics use the letter on the key enclosed in brackets.

If you see a letter inside brackets it means shift and hit that key. (S) means shift and hit S which gives you a heart.

•17) Use REMark statements to include these conventions within the program itself.

First enter the line just as you normally would. Then immediately following it (or the next line) have a REMark and list the special parts of the line using the conventions specified above. Your program will then run correctly and can be listed on a printer and be easily interpreted. Anyone else using your program will then be able to run through a listing and understand what keys you are using to get the results he/she sees.

***See Peoples Computers, Jan. 78, page 17 for further information.

Example:

```
230 ?"(HOME, 3DOWN,S)"
```

You type 2 3 0 ? " the HOME key CURSOR DOWN 3 times shift S "

MORE →

CONVENTIONS FOR ADDING MUSIC TO PROGRAMS

There are several methods that the PET can produce music (sound). This is one way which is very easy to implement both in the program and easy to hook up. Please do experiment with the other ways -- you may end up with a symphony.

•18) Connect your speaker/amplifier to pins M & N of the User Port.

Pins M & N are the last twop pins on the bottom right hand side of the User Port (the middle port on the back of the PET)
With this set up there are 3 memory locations to POKE to produce sound.

POKE 59467 -- Put a 16 here and it turns your sound capability on. (and turns your cassette recorder capability off)
Put a 0 here to return to normal.

POKE 59466 -- Put any number from 1 to 255. This varies the tone or quality of the sound (mellow or sharp)
Put a 0 here to return to normal.

POKE 59464 -- This produces the pitch. Put any number from 1 to 255 here to vary the tone from low to high.
Put a 0 here to return to normal.

•19) ALWAYS turn the music mode off after the sound is done.

Don't wait till the end of your program to return the cassette functions back to normal. What if the user breaks the program in the middle and wants to save it (and doesn't know how to POKE back the cassette functions). End every sound routine with:
POKE 59467,0:POKE 59466,0:POKE 59464,0

CONVENTIONS FOR ADDING JOYSTICKS TO THE PET

Please send us your suggestions on the best way to do this. Next issue we will list conventions to follow to allow easy exchange of programs between users with joysticks attached.

RESOURCES

Abacus Software
PO Box 721
GrandRapids, MI 49510

A B COMPUTERS
PO Box 104
Perkasie, PA 18944

ALCORN DATA SERVICES
PO Box 1535
Corinth, Miss. 38834

APPARAT, INC
Box 10324
Denver, CO 80210

A TO Z INC, M H MAJOR
300 Guaranty Bank Plaza
Corpus Christi, TX 78475

AUTOMATIC HARDWARE CO
771 NE Harding St
Minneapolis, MN 55413

CARL BACH
1015 Saturn Springs Dr
Garland, TX 75041

C. Blackstock
22312 80th Ave West
Edmonds, WA 98020 ← BYTE SHOP (end of list)

CALCULATOR/COMPUTER MAGAZINE
Box 310
Menlo Park, CA 94025

CHANNEL DATA SYSTEMS
5960 Mandarin Ave
Goleta, CA 93017

CGRS MICROTECH
PO Box 368
Southampton, PA 18966

CMS
5115 Menefee
Dallas, TX 75227

COMMODORE, PET COMPUTER DIV
901 California Ave
Palo Alto, CA 94304

COMPUTER COMPLEMENTS CORP
147 Jericho Turnpike
Floral Park, NY 11001

COMPUTER COMPONENTS
6791 Westminster Ave
Westminster, CA 92708

COMPUTER ENTERPRISES
PO Box 71
Fayetteville, NY 13066

COMPUTER FACTORY
790 Madison Ave
New York, NY 10021

COMPUTER HOUSE
721 Atlantic Ave
Rochester, NY 14609

COMPUTERLAND
4233 Convoy St
San Diego, CA 92111

COMPUTER MART SYSTEMS
13 East 30th St
New York, NY 10016

COMPUTER PROJECT
Peninsula School/Penins. Wy
Menlo Park, CA 94025

COMPUTER RESOURCES COMPANY
1437 Gordon St
Allentown, PA 18102

COMPUTERS ONE/#306 Kahala
4211 Waialae Ave
Honolulu, HI 96816

COMPUTER STORE, Dick Heiser
820 Broadway
Santa Monica, CA 90401

THE COMPUTER STORE
820 Broadway
Santa Monica, CA 90401

THE COMPUTER SYSTEMS STORE
1984 Chain Bridge Rd
McLean, VA

CONNECTICUT MICROCOMPUTER
150 Pocono Rd
Brookfield, CT 06804

CONTEMPORARY MARKETING
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Bensenville, IL 60106

CONTRACTORS' MANAGEMENT SYS
PO Box 212
Chantilly, VA 22021

CONTROL LOGIC
Natick, MA

CONVENIENCE LIVING SYSTEMS
648 Sheraton Dr
Sunnyvale, CA 94087

COYOTE ENTERPRISES
Box 101
Coyote, CA 95013

CREATIVE COMPUTING
PO Box 789-M
Morristown, NJ 07960

CREATIVE SOFTWARE
PO Box 4030
Mountain View, CA 94040

CURSOR
Box 550
Goleta, CA 93017

DR DALEY
425 Grove Ave
Berrien Springs, MI 49103

DATA SYSTEMS
Box 1873
Rocky Mount, NC 27801

ECLECTIC SOFTWARE
2830 Walnut Hill Lane
Dallas, TX 75229

EDV - BENUTZER VERBAND
Gunther W Berlein
Postfach 29
D-8473 Pfreimd
Brunner-Bey-Strasse 35
W. Germany

EXCEL COMPANY
2241 Tamalpais Ave
El Cerrito, CA 94530

FORETHOUGHT PRODUCTS
Box 386
Coburg, OR 97401

FOREMAN
Box F
Mobile, AL 36601

ANDY FRALEY
1753 York Rd
Reading, PA 19610

John Fung, Minnesota Daily
720 Washington Av SE, #357
Minneapolis, MN 55414

R A GATES
PO Box 756
Kentfield, CA 94904

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RESOURCES

GRT CORP-CUSTOM PROD. DIV.
1286 North Lawrence Stn Rd
Sunnyvale, CA 94086

HOME COMPUTER CENTRE
6101 Yonge St
Willowdale, Ontario CANADA

DAVE HOWE
Box 28314
Sacramento, CA 95828

HUH ELECTRONIC MUSIC PRODUC
PO Box 259
Fairfax, CA 94930

INTERACTIVE COMPUTER SYSTEMS
PO Box 517 **CANADA**
Fredericton, New Brunswick

INTERNATIONAL TECHNICAL SYST
PO Box 264
Woodbridge, VA 22194

JAMES JOHNSON
9304 Emory Grv Rd
Gaithersburg, MD 20760

RANDY JULIN
15 Poncetta Dr #322
Daly City, CA 94015

DON KETCHUM
313 Van Ness Ave
Upland, CA 94720

KILOBAUD

PETERBOROUGH, NH 03458

LAWRENCE HALL OF SCIENCE
COMPUTER PROJECT
PETE ROWE
ROOM 254
University of California
Berkeley, CA 94720

1/3

RICHARD LIEBERT
PO Box 268
Scarborough Station, NY10510

MADISON COMPUTER STORE
1863 Monroe St
Madison, WI 53711

MAGNEMEDIA
17845 SkyPark Circle, SuiteH
Irvine, CA 92714

MARKETRON
1240 Bay St Mall
Toronto, Ontario, CANADA

MATRIX MAGAZINE
1041 North Main St
Ann Arbor, MI 48104

M & E ASSOCIATES ← H.A. McCANN (see end of list)
10439 N Stelling Road
Cupertino, CA 95014

MICRO
8 Fourth Lane
So Chelmsford, MA 01824

MICROCOMPUTER ASSOCIATES
2589 Scott Blvd
Santa Clara, CA 95050

MICROCOMPUTER RESOURCE CENTR
1929 Northport Dr, Room 6
Madison, WI 53704

MICROSIGNAL
PO Box 161988
Sacramento, CA 95816

MICROTRONICS
5943 Pioneer Road
Hughson, CA 95326

MICROTRONIX
PO Box Q
Philadelphia, PA 19105

MINDS EYE PERSONAL SOFTWARE
PO Box 354
Palo Alto, CA 94301

C W MOSER
3239 Linda Dr
Winson-Salem, NC 27106

NATIONAL CORPORATE SCIENCES
790 Madison Ave
New York, NY 10021

NCE/ COMPUMART
1250 N Main St
Ann Arbor, MI 48104

THE NETWORKS
5014 Narragansett #6
SanDiego, CA 92107

NEW ENGLAND ELECTRONICS CO
248 Bridge St
Springfield, MA 01103

OSBORNE & ASSOCIATES
PO Box 2036'
Berkeley, CA 94702

THE ~~PET~~ PAPER
PO Box 43
Audubon, PA 19407

PEOPLES COMPUTERS
1263 El Camino Real, Bx E
Menlo Park, CA 94025

PERSONAL COMPUTER CORP
Frazer Mall, Lancaster, Rt352
Frazer, PA 19355

PERSONAL SOFTWARE
PO Box 136-05
Cambridge, MA 02138

PET CASSETTE EXCHANGE
1929 Northport Dr, Room 6
Madison, WI 53704

PET CONNECTION
4108 Buckeye
Madison, WI 53716

PET GAZETTE
1929 Northport Dr, Room 6
Madison, WI 53704

PET OWNER GROUP/CARL MARTIN
2001 Bryan Tower #3800
Dallas, TX 75201

PET SHACK
PO Box 966
Mishawaka, IN 46544

PET SOFT
318 Fulham Rd
Chelsea
London
ENGLAND SW10 9UG

PET USERS GROUP
Box 371
Montgomeryville, PA 18936

PET USERS GROUP/ROY OBRIEN
Box 379
S. Bound Brook, NJ 08880

PET USERS GROUP/LEN LINDSAY
1929 Northport Dr, Room 6
Madison, WI 53704

PICKLES & TROUT
PO Box 1206
Goleta, CA 93017

PROGRAM DESIGN INC
11 Idar Court, DEPT 110
Greenwich, CT 06830

MORE

J K Johnson sent us this program to SET BASIC UPPER LMITS. It is to be used as a lead program before a BASIC program. This program is very useful to automatically set upper limits.
It loads first, Sets limits, then stops and automatically loads the following program. The number poked in statement #110 controls the upper limit. The #31 in this example permits a 256 byte Machine Language program or variable starage between loads of two BASIC programs.

```
110 POKE 135, 31
120 PRINT"(CLR),4DOWN)LOAD":POKE525,2:POKE526,13:POKE527,13:PRINT
    "(HOME)":END
```

* *

NOTE: if you are adding a second cassette deck using the article from PET User Notes, put a capacitor across the remote switch & an inductive spike clipper across the relay coil.

* *

RESOURCES

PROGRAMMERS SOFTWARE EXCHANGE
2110 North Second
Cabot, Ark 72023

PRS - PROGRAM OF THE MONTH*
257 Central Park West
New York, NY 10024

ELLIOTT PURSER
PO Box 466
Eldorado, CA 95623

PYRAMID DATA
6 Terrace Ave
New Egypt, NJ 08533

RBI SYSTEMS
Rockville, MD

REICH ENGINEERING
635 Giannini Dr
Santa Clara, CA 95051

MIKE RICHTER
2600 Colby Ave
Los Angeles, CA 90064

RICO ENTERPRISES
8 J Lakeside Dr
Ledyard, CT 06339

WALTER RYCHLEWSKI
603 Spruce
Liberty, MO 64068

MJ SALISBURY CASE
Box 6633
Oxnard, CA 93030

SAWYER SOFTWARE
828 Lewis - Rt 3
Dexter, MO 63841

R SCHMIDT ← SCELBI (see end of list)
14 Tinker Rd
Nashua, NH 03060

SEMCOM
325 Winding Dr
Pontiac, MI 48054

SKYLAB
VIA M Gioia 66
20125 Milano, ITALY

SMITH BUSINESS SERVICES
6724 Wynne Ave
Reseda, CA 91335

SOFTAPE
10756 Vanowen
North Hollywood, CA 91605

SOFTBYTE
315 Dominion Dr
Newport News, VA 23602

SOF-TOUCH
Box 422
Logan, UT 84321

THE SOFTWARE EXCHANGE
Box 55056
Valencia, CA 91355

SPHINX/Milt Lee
1348 Rudgear Rd
Walnut Creek, CA 94596

WARREN SWAN
15933 S Grove Ave
Oak Forest, IL 60452

RAYNOR TAYLOR/QTRS 718
Charleston Naval Base
Charleston, SC 29408

TOTAL INFORMATION SERVICES
PO Box 921
Los Alamos, NM 87544

BOB WALLACE
PO Box 5415
Seattle, WA 98105

ROGER WALTON
Box 503
Bethany, OK 73008

SJ WHITE
429 So Cordova St
Alhambra, CA 91801

ZIATECH CORP
10762 La Roda Dr
Cupertino, CA 95014

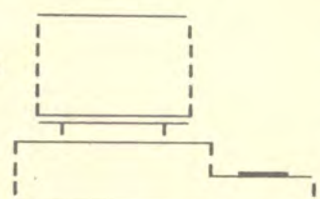
ZZYP DATA PROCESSING
2313 Morningside
Bryan, TX 77801

ALMOST LEFT THESE OUT R

AH MCCANN L-430
PO Box 5506
Livermore, CA 94550

BYTE SHOP of MILWAUKEE
6019 West Layton Ave
Greenfield, WI 53220

SCELBI COMPUTER CONSULTING
PO Box 133 PP STN
Milford, CT 06460



HARDWARE

CASSETTE DRIVE

COMMODORE - $99

COVER / CARRYING CASE

A B COMPUTERS - Protect a PET $14
NEW ENGLAND ELECTRONICS - Dust Cover $18
MJ SALISBURY - Carrying case $50
S J WHITE - cover $14

FLOPPY DISK

EDV - Still no price or info on this German company
COMMODORE - still in the rumor stage

HAM RADIO INTERFACE

MICROTRONICS - $70 kit; $100 assm

IEEE - 488 INTERFACE

AUTOMATIC HARDWARE - $148 plus $348 for the main unit

JOYSTICKS

COYOTE ENTERPRISES - $50
CREATIVE SOFTWARE - $35
MICROTRONIX - $40 for the first one, $20 for the second

KEYBOARD

EXCEL COMPANY - $65 for keyboard interface/ $70 with lower case
NEW ENGLAND ELECTRONICS - Full size, plug in PET compatible keyboard- May be used simultaneously with the original keyboard. $125 approx.

LOGIC ANALYZER

ZIATECH - (we have no price listed)

MEMORY

COMPUTER MART SYSTEMS - PME-1, 16K/$550; 24K/$650; 32K/$750
CONVENIENCE LIVING SYSTEMS - ExpandaPET $395, 16K plus slots for 4 additional boards which include EPROM, I/O, S-100...
INTERNATIONAL TECHNICAL SYSTEMS - PEM-8K $279

MODEM

NETWORKS - TNW 488/103 $320/cable to CBS or CBT $15/cable to PET IEEE 488 port $20/cabinet $35

MUSIC & SOUND

HUH ELECTRONIC MUSIC PRODUCTIONS - Beeper $20; Petunia Music Board $30
MICROSIGNAL - Computone $15 (needs connectors at $3)
NEW ENGLAND ELECTRONICS - Music Box $50

TRY THIS---If you have a program in memory and want to RUN it. You don't have to type the word R U N. Just type any garbage letters (not numbers) and then hit SHIFT RUN key. Your program will run for you.

HARDWARE

PAPERWARE

A B COMPUTERS - 6500 Programming & Hardware Manuals $6 each
Hewlett-Packard IEEE-488 condensed description of Bus $1.50
ALCORN DATA - CRT Layout form, Proportional Spacing Chart, & Basic Coding Form (including a documentation form) pads of 50: $2
C BLACKSTOCK - complete printout of PET operating system, assembly language listing $6
CALCULATORS/COMPUTERS - magazine, feature articles on the PET 7/$12
CHANNEL DATA - Channel Data Book $20. A listing of PET products & services
CURSOR - Cassette "magazine" of about 6 ready to run programs. 12/$24
DON KETCHUM - Instructions & cassette on how to write/read directly to/from memory for fast execution machine language programs $5
MATRIX MAGAZINE
MICRO - magazine for 6502 microcomputers including PET 6/$6
ON_LINE - newsletter of new product announcements & a buy/sell forum ads plus calendar of clubs and meeting dates/times 18/$3.75 36/$7
OSBORNE & ASSOC. - will be publishing a PET User Manual this fall
PEOPLES COMPUTERS - magazine with a special section on the PET 6/$8
PET GAZETTE - Free PET resource handbook and news on the PET.
PETABLE - Intro to the PET $5; Program, a monthly cassette "magazine" 12/$27
PET PAPER - newsletter & technical aid for PET users 10/$15
PET SHACK - PET schematics $35; PET ROM Routines listing $20
PET USER NOTES - PET Newletter 6/$5
SPHINX NEWSLETTER - Send your donation.
TOTAL INFORMAION SERVICES (TIS) - PET workbooks: Getting Started with your PET $4; String and array handling $4; Graphics $5; Cassette I/O $5; Miscellaneous $4.
RAGOER WALTON - 6502 Programming Manuals $5 each

PARTS & CONNECTORS

A B COMPUTERS - User or IEEE-488 port connector $2; Cassette port connector $1.70
MICROTRONIX - IEEE or User port connector with cover $10; Cassette port connector with cover $5
PICKLES & TROUT - IEEE-488 cable assembly $30
RICO ENTERPRISES - User or IEEE-488 port connector $3.50; Cassette port connector $2.50

PRINTERS & PRINTER ADAPTERS

Commodore - $695 dot matrix printer
CONNECTICUT MICROCOMPUTER - Printer adapter: $99 without power, case, cables / $169 complete.
MICROSIGNAL - PEType $25 (requires battery part at $7 & 2 connectors at $6) / PETsero $25 (requires battery part at $7 & 2 connectors at $6)
MICROTRONIX - Centronics printer: parallel $395 & $50 for cables & software
serial $549 & $50 for cables & software
Anderson Jacobson printer $995 / PET Graphics Ball $200 extra / RS232 serial add $200
Expandor 123P $495
Integral Data IP-125 printer $795 / $1195 with PET Graphics

HARDWARE

PROM PROGRAMMER

CONVENIENCE LIVING SYSTEMS - to be announced yet

RS 232 / SERIAL I/O

AUTOMATIC HARDWARE - $148 plus $348 for the main unit
CONNECTICUT MICROCOMPUTER - output only $99 without power, connectors or case / $169 complete
CONVENIENCE LIVING SYSTEMS - $50 (to plug into their ExapndaPET board)
EDV - to be announced
NETWORKS - TNW 488/232 Serial Interface: single bidirectional channel $240 / two bidirectional channels $280 / cabinet $35 / cables $20

S-100 ADAPTER

A B COMPUTERS - kit $105; assm $149
CGRS - PET/S100 adaptor $196
CONVENIENCE LIVING SYSTEMS - $50 (plugs into their ExpandaPET board)
EXCEL COMPANY - $65
FORETHOUGHT PRODUCTS - Betsi $105 kit; $160 assm.
HUH ELECTRONIC MUSIC PRODUCTIONS - PETS-100 $200 kit; $280 assm
PICKLES & TROUT - P&T-488 $250 kit; $325 assm.

TAPES - SHORT LENGTH (C-10)

A B COMPUTERS - 12/$11
DR DALEY 81¢ for 100 or more; 99¢ for 21-100; $1.25 for less than 100
MADISON COMPUTER STORE - 10/$14 with labels
MICROSETTE - 10/$7.50; 50/$32.50
MICROTRONIX - $1.50
NEECO (NEW ENGLAND ELECTRONICS) - $1.25
PYRAMID DATA - 5/$3.30
RAY JACOBS - full size casette labels $15 per 1000

VIDEO OUTPUT

HUH ELECTRONIC MUSIC PRODUCTIONS - $30 / $60 with RF to antena
MADISON COMPUTER STORE - $25 including monitor jack.

VOICE INPUT

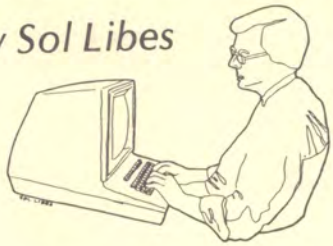
MICROSIGNAL - Compuvox $30 (requires 2 connectors at $6)

X/Y PLOTTERS

X AND Y ENTERPRISES - Direct Input $195 kit, $249 assm
IEEE 488 Interface Option $98 board only, $295 kit, $395 assm
RS 232 Interface Option $98 board only, $295 kit, $395 assm

Bits And Bytes

by Sol Libes



...Commodore will be shipping its disk system for the PET starting in the late fall. It will use a stripped-down Shugart mini-drive and a new disk format, they have developed, which will increase the data density from the standard 90K bytes to 130K bytes. The system will require that one track be pre-recorded with positioning information. A special program will be provided so that the user can initialize the disk with the data before using it.

REPRINT FROM: ACGNJ -NEWS

Amateur Computer Group of New Jersey
UCTI
1776 Raritan Road
Scotch Plains, NJ 07076

SOFTWARE

S O F T W A R E - G A M E S

ABACUS SOFTWARE - Blackjack $7; Depthcharge $7; Hangman $8; 3D Tic Tac toe $6. Postage Paid.

A B COMPUTERS - ABTAPE1 includes Life, Biorhythm, Othello, Mastermind II, Multiprimer, Klingon Capture $8; Kites $8.

A. L. - Blackjack, Biorhythm, Depthcharge, Tic tac toe(3D), Hangman, $6 each/ 3for$15. — Same address as ABACUS — see above

APPARAT - Acey Deucey $2; Craps $3; Football $5; Golf $3; Guess $1; Hamurabi $3; Hurkle $2; Lunar Lander $3; Mastermind $2; Reverse $1; Star Trek $5; Wumpus $3. Add $2 per tape, includes shipping. (fits 2 to 4 programs on 1 tape).

CMS - Blackjack, Baccarat, Roulette, Craps, $10 each or 4 for $25; Quibic $10; Gomoku $10.

COMMODORE - Osero & Reverse $10; Target Pong & Off the Wall $10; Lunar Lander, Rotate, Wumpus, & Tic Tac Toe $10; Galaxy Games $10; Draw Poker $10; Blackjack $10; Spaceflight $10; Spacetrek $10; The PET Show $10.

COMPUTER PROJECT - PILOT interpreter, Gold, Sky, Hammurabi, Names, Hands $20; Draw, Quest $10; Renumber, Lemon, Kaleidoscope, WSFN $15.

CONTEMPORARY MARKETING - Blackjack, Draw Poker, Galaxy Games, Space Flight, Spacetrek, Kingdom at $10 each. Also Commodore Games.

CONTRACTORS' MANAGEMENT SYSTEMS - 3D Tic Tac Toe, Space Battle, & Tank $15; Obstacles, Dogfight, & Race $18.

CREATIVE COMPUTING - Graphics Games 1; Graphic Games 2; Logic Games 1; Logic Games 2; Number Guessing Games 1; Conversational Games 1; $8 each plus shipping. (5 or 6 programs per tape)

CREATIVE SOFTWARE - Gamepac 1:Jumpcheck, Tip the Dominoes, 23 Matches, Hamurabi, Slot Machine $12; Gamepac 2:Darts, Buzzwords, Nimble, Gomoko, Bullfight $10; Spacewar $10; Star Wars Shootout $10 (for use with joy stick only). Shipping charges $1 for 1 or 2/$1.50 for 3 or 4/$2 for 5 up. Also Maze & Sketchpad come with their joy stick at $35.

DR. DALEY - Hamurabi $4; King $7; Dictator $9; Deepspace $5; UFO $5; Enterprise $6; Spacebattle $9; Klingon Capture $4; Lunari $6; Startrek $7; Startrek 3 $10; Road Rally $5; Football $7; Hurkle $4; Wumpus $6; Deflection $5; Racetrack $4; Racetrack 2 $6; Swat $4; Chase $8; Match 23 $3; Dogfight $3; Number $3; Stars $3; Letter $3; Bible Book $5; Bible Quiz $6; Football for 2 $10; Market for 2 $6; Deflection with Sound $8; Startrek 2 with Sound $9; All postpaid.

ECLECTIC CORP - Slots, Blackjack, Poker, Craps $15; Golf, Bowling, Hamurabi, Robots, Checkers $15; Add $1 shipping.

ANDY FRALEY - Seawolf, Dogfight, Bomber, Indy 500, $6 each.

R A GATES - various games 13 for $20.

GRT - Blackjack, Roulette, Craps, Slot Machine $???;(price not given)

DAVE HOWE - Balls, Snake, Biorhythm, Video Table,15 more $20; Draw Poker, Gomoku, Space Shooter, Biorhythm, CDMP-DIS & 15 more $20.

JAMES K JOHNSON - Blackjack for 5 $5.

RICHARD LIEBERT - Craps $8.

MAGNEMEDIA - True/False Quiz; Variable Message; Don't Fall; Memory Aid; Drawing; $8 each.

MATRIX MAGAZINE - Various Games.

SOFTWARE

S O F T W A R E (cont) G A M E S

MICROTRONIX - Chess $20; Astrology $15; Housebreak Your PET $20; Startrek $30; Star Pilot $20; The Dragon $10; Blackjack $20; LEM $15; Artillery $15; Hangman $15; Five Card Draw $15; Deflection $10; Maze & Breakout (with Joystick) $40. Shipping $1 per software unit.

NEW ENGLAND ELECTRONICS - War Games Package #1 - Depth Charge, Bombadier, Anti Aircraft, Dogfight - $10 each or $25 for the 4; LEM Lunar Lander $8; Blackjack $8; Deflection $10; Hunt the Wumpus $6; Othello $8; (the 5 previous games plus 1 Demo are $25); Masterbrain $10; Slot Machine $6;One Queen $7; Bullfight $6; Scramble $8; Space War $10; Poker $8; Evasion(Chase) $8; Emperor $10; Entrapment $7; 2 Player Chess $15;

The ~~PET~~ PAPER - Chase, Blackjack, Blockade, Deflection, Space Fight, $10 each;

PERSONAL SOFTWARE - Poker, One Queen, Kingdom, Matador $15; Diamond Thief, Monster Chase, Lost Treasure, Space Flight, more $15; Doodler, Plotter, Letter, $13; Bridge $15.

PET USERS NOTES - Statecaps, Racetrack, Deflection, Othello 1 & 2, Bagels, Startrek, Blackjack, Life, Trap, Super Mastermind, Lunar Lander, Nim, 3D Tic Tac Toe, King, Breakout, Swatplot-each are $1 plus $2 for the first one on the tape/maximum 4 per tape.

REICH ENGINEERING - 3 animated games $10.

SAWYER SOFTWARE - Chessboard $10

R SCHMIDT - 18 games for $16.

SMITH BUSINESS SERVICES - Startrek $8; Story, Guess, Letter Guess, Hammurabi $8; Blockade $8; Life $10.

SOFTAPE - Othello, Mastermind, Seven, 21, Roulette, UFO, Clean Sweep, Pong Practice, Lunar Lander, Starwars and more. $20 for 3 - 10 (?)

SOF-TOUCH - Cannon Ball & Tic Tac Toe $9; Battleships & Spin to Win $9; Dograce $5.

WARREN D SWAN - Star trek $20; IQ Test $6; Craps $6; Baseball $4; Eliza $6; Road Race $2; Zoop $1; Life $5; PET Art $2; Dazzler $2; Etch a Sketch $2; Bouncing Ball $2; Screen Blinker $1; Kaleidoscope $1; Add $1.50 per tape.

S J WHITE - Blackjack, Craps, 6 more $16; Startrek $16. Add $1 shipping.

ZZYP DATA PROCESSING - Iron Planet & Hangman $10; Blackjack & Poker $10.

S O F T W A R E - S E R I O U S

ABACUS - Amortization $6; Biorhythm $7; Multiplication $7.

APPARAT - Life Expectancy $4; Appartment Analysis $4; Stock Options $5; Indian Recipies $4; Recipe Cost $2; Diet Planning $3; Biorhythms $3; Metric Conversion $2; Add $2 for tape cost.

A TO Z INC - Payroll $15.

COMMODORE - Diet Planner & Biorhythm $15; Basic Basic $15; Mortgage $15; Stock Portfolio Analysis Package $25; Basic Finance/Investment Analysis Package $25; Basic Math Package $30.

COMPUTER FACTORY - Mortgage $16; Annual Report Analyzer $23; Stock Analyzer $35; Data Base $175/yr; Stockscreen $23; Options $25; Finance $13; Bonds $10; Checkbook $16.

COMPUTER PROJECT - PILOT interpreter $20; Renumber (with more games) $15.

SOFTWARE

COMPUTERS ONE - General Ledger $20; Checking Account $20; Rent Accounts $17; Legal Diary $17; Trust Accounts $17.

CONNECTICUT MICROCOMPUTER - Word Processor $30.

CONTEMPORARY MARKETING - Has Commodore programs.

CONTRACTORS' MANAGEMENT SYSTEMS - Math 1 $10; Math 2 $10; Math 3 $10; Basic 1 $20; Basic 2 $20; Basic 3 $20.

CREATIVE COMPUTING - Educational Simulations 1 $8 (about 5-6 programs)

CREATIVE SOFTWARE - Household Finance $15; Math $10.

DR. DALEY - Biorhythm $8; Market $6; File Handling Demo $8.

ECLECTIC SOFTWARE - Amortization & Financial Analysis $16.

GRT - Biorhythm, Dieting, Longevity, Checkbook $??? (price not given)

HOME COMPUTER CENTER - Monitor $12; Disassembler $12; Music $12; Clock $12; Animation $12; Entry $12; Process $12; Mail-Listing $12; Software I/O Interface $40; Financier $9; Mortgage $10; Personal Weight Control $9; Biorhythm $9; Loan Amortization $9; Stock Game $9.

KILOBAUD - Personal Weight Control/Biorhythms $8; Mortgage/Financier $8.

A. H. MCCANN - Traverse & Curve/Intersect $35.

MICROSIGNAL - Voicetrap $4; Voicemaze $4; Hexmon $4; Soundtrap $4; Soundbreak; $4. Shipping is 10%.

MICROTRONIX - Biorhythm $20; Home Data Retrieval $10; Stat $20; Renumber & Cross reference $10. Shipping is $1.

C W MOSER - Assembler Text Editor $30.

NEW ENGLAND ELECTRONICS - Grades $8; Statistics $8; Depreciation $9; Biorhythm $8; Addition Game $5; States & Capitols $5; Hex/Dec $6.

THE PET PAPER - Stat I & II, $20, Data Retrieval, Data Edit, $10 each.
PET Basic Compleat - Manual $30, Cassette $20.

PERSONAL SOFTWARE - Personal Finance $13; Assembler $25.

PET SHACK - Monitor $10 (with purchase of ROM routines listing)

PET USER GROUP - (Montgomeryville) Cash Flow, File List & Sort, List Memory, Machine Language Monitor, Biorhythm, Time - $1 each plus $2 for the tape that fits 4 programs.

PROGRAM DESIGN - Preschool IQ Builder $6; IQ Builder-Analogies $6; IQ Builder - Vocabulary $8; IQ Builder Number Series $6; Step by Step (BASIC course) $18.

SAWYER SOFTWARE - Business Graphic Pack 1 $25; Business Analysis $30; Calculator $10; Schedule Planner $15; Schedule Planner #2 $20; Accounting Pack 1 $25; Financial Pack 1 $15.

SMITH BUSINESS SERVICES - Demos & Utilities $8; Machine Language Monitor $12.

SOFTBYTE - Tax Program $20.

WARREN SWAN - Life Time $2; Large Letter Printer $5; Calendar $3; 3D Plot $2; Base Converter $3; Regression $5; Calculator $5; Tape File Directory $5. Plus $1.50 per tape.

TOTAL INFORMATION SERVICES - Medit (Editor) $6 plus $4 for cassette

RAYNOR TAYLOR - Monitor $8.

S O F T W A R E - E X C H A N G E S

DATA SYSTEMS
CARL BACH
EVAN FOREMAN
RANDY JULIN
PET CASSETTE EXCHANGE
PET USER GROUP - Montgomeryville
MICHAEL RICHTER
SPHINX
6502 PROGRAM EXCHANGE
THE SOFTWARE EXCHANGE

PET USER GROUPS

PUG meets every 1st WED at Mercury Room, 310 Showers Dr, Mountain View, CA

BAMUG, 1450 534d St, Emeryville, CA (415)523-7396

North Orange County Computer Club, Dave Smith, 3030 Topaz, Apt A, Fullerton, CA 92631

Sacramento PET Workshop, c/o Dave Howe, PO Box 28314, Sacramento, CA (916)445-7926. Meets every 3rd THURS at 7:30.

SPHINX, 314 10th Ave, Oakland, CA (415)451-6364 or (714)566-2839 Dave meets twice a month on THURS. Contact Milt Lee or Neil Bussey

Lawrence Hall of Science, Pete Rowe, Computer Project, Room 254, University of California-Berkeley, Berkeley, CA 94720 (415)642-3598

For California there is an East Bay area group and a South Bay area group.

Twin Cities, Minnesota contact John Fung (612)376-5465.

St. Louis Club contact Ginny Perkinson, 46 Westwood Court, St Louis, MO 63131

Amateur Computer Group of New Jersey - PET Users meet every 4th Friday. Call John Loofbourrow (201)233-7068. Meeting time 7pm. UCTI, 1776 Raritan Road, Scotch Plains, NJ 07076. Also contact Roy OBrien, Box 379, S. Bound Brook, NJ 08880.

Computer Corner PET User Goup, White Plains, NY 10603

PET User Group, Gene Beals, PO Box 371, Montgomeryville, PA 18936

River City Computer Hobbiests (near Memphis, Tenn.) meets 1st MON at main library.

PET User Group, Texas A & M Microcomputer Club, John Bowen. (watch for their show this spring)

PET Users, 2001 Bryan Tower, Suite 3800, Dallas, TX 75201

Madison PET Users (The Humane Society?) meets every 1st THURS at 1400 East Washington Ave, Washington Square office complex, Room 150, Madison at 7pm.

There is a new club in San Diego forming which meets once a month. No more info available.

ENGLAND
PET Users Group, Thomas Turnbull, President, 49 x 9th Row, Ashington, Northumberland, NE63 8JY, England.

REVIEWS

R E V I E W - BLACKJACK - $9.95 - C.M. Stuart & Co.

This is an excellent version of the popular game of blackjack or 21. One person plays against the computer dealer and the cards of both are graphically displayed on the screen. The game is played by Las Vegas casino rules, which means that doubling down, splitting pairs, and insurance bets are permitted. Those blackjack enthusiasts who wish to practice their card counting may choose to have the cards dealt from 1, 2, or 4 decks shuffled together. For the beginning player the program displays the total value of his cards when it asks if a hit is wanted. The beginner will also appreciate the understandable prompting and error messages. A running total of your winnings or loses is shown after each hand. If your losses become embarassingly high you can have them reset to zero. Four pages of clear instructions accompany the program.

Reviewed by Pete Weiler

REVIEW - PET Information Package & Products Directory - FREE - New England Electronics Co.

NEECO sends this pack to anyone who is interested in the PET. It is very helpful, especially if you are trying to find out about the PET BEFORE you buy one. The products directory is very professionaly done. They include a reprint of an excellent article, PET's First Repart Card from Kilobaud magazine. PET owners will appreciate the directory of products for the PET available through NEECO. They are dealers for a good number of companies.

* *

If during a program you get the message PRESS PLAY & RECORD ON TAPE 1 you can avoid this if you wish, simply hit STOP, then type in C O N T

Our PET gave us this message once: BREAK IN 8245.05376

Has your PET done any weird things like that??? Please send us a note!!!

REVIEWS

R E V I E W - BACCARAT - $9.95 - C.M. Stuart & Co.

Many versions of baccarat, also called chemin de fer, are played in casinos around the world. This program plays 2 versions, a Las Vegas one and an unusual "blackjack style" version. In both, two 2-card hands are dealt and each hand may receive a third card. In the Las Vegas version the rules strictly dictate how both hands are to be played. The only choice the player has is his bet. Before both hands are dealt he may bet on either hand or on a tie. The lack of choice during the play makes baccarat a dull game when not played for real money. In the "blackjack style" version the player must bet on the "table hand" but may choose whether or not this hand is to be hit with a third card. This is more interesting than the Las Vegas version but still is not as much fun as blackjack. The program itself is a good one with large, graphically displayed cards, running totals of your winnings or loses, and good prompting and error messages. (However, there is a bug in the house-limit-exceeded message.) In the 3 pages of instructions there is a confusing error in the rules governing the drawing of the third card, but this error does not appear to be in the program.

Reviewed by Pete Weiler

REVIEWS

REVIEW - READ, WRITE PET MEMORY - $7.95 - Don Ketchum

This program allows you to enter machine language programs into the PET and execute them. This is not a machine language monitor but a Basic program. It has an excellent format with a shopping list menu of commands.

The documentation is excellent. It has a couple of examples of programs and also compares the speed of a machine language program with that of a Basic program.

The one fault I see with the program, is that it should display what is currently in the location you are going to change when in the write memory section. This would be helpful when editing or checking a program. This should be easy to change in the program if you want to do this.

Overall, this is an excellent starting point for people who want to learn how to write short machine language programs. For the more advanced, I would suggest a machine language monitor.

-- Dave Mehaffy --

REVIEW - CHESSBOARD - $10 - Sawyer Software

Excellant use of PET (TM) graphics! This program displays a chessboard and maintains it for two players. The time each player spends making his moves is also displayed. Typical chess notations are used to specify moves. Although the program does not check the validity of moves, it does provide for correcting mistakes. Another useful feature of the program is that it stores and retrieves partial games for future completion.

Reviewed by:

Harvey S. Sherman

REVIEW - TRAVERSE & CURVE/INTERSECT - $35 - A H McCann

These two programs are useful for Civil Engineers & Land Surveyors. Traverse does these calculations: 1)Bearing traverse 2)Field angle traverse using either deflection angles or interior angles 3)Compass adjustment for perfect closure 4)Inverse from coordinates. Curve/Intersect does these: 1)Solves all values of circular arcs given any of 6 possible pairs of unknowns 2)Solves all values of the intersection of two lines for the known coordinates of one point on each line and one of the following:a.Bearings of both lines b.Bearings of one line and length of the other c.Lengths of both lines. The programs do exist and we hope to find an engineer to help test them.

REVIEWS

REVIEW - CASINO ROULETTE - CMS - $9.95

This is a great version of roulette. It is designed not only to play the game but to teach it, just the way it is played in a casino. The documentation is complete in every detail.

The displays shows the layout of the betting table, the 12 types of bets and their odds.

When you "spin" the wheel, an X moves from number to mumber on the betting table, stopping by the winning number.

The results of all the bets are shown and your purse is displayed. You then can play again or stop.

If you are going to Vagas and want to play roulette, this is a must.

--Bill Bendoritis--

REVIEW - GOMOKU - CMS - $9.95

The object is to get 5 men in a row - horizontally, vertically, or diagonally - on a 9x9 grid. The computer asks you your name and uses the first letter to designate your moves. It uses P for PET, unless your name happens to start with P, then it uses C for Computer.

There are 30 moves in the game. You go first. The computer plays a defensive game, but as soon as you make a non-threatening it takes the initiative. After you both have 20 men on the board the remaining 10 moves are moving men from one place to another.

The computer plays a tough game and makes its moves quickly.

One very nice feature of the program is once you choose your row & column for your move, it displays a "?" for a few seconds at that location. If you decide that is not the best place all you do is hit return and you may make your new move instead.

--Bill Bendoritis--

REVIEW - QUIBIC 4 - CMS - $9.95

This is a very good version of three dimensional tic tac toe.

Besides giving directions it will show you all 76 different combinations that win. If you don't wish to see them before each game they may be skipped.

It plays a good game, but finally we did beat it once.

One nice feature is once you choose your move it displays a "?" in that location for a few seconds. If you change your mind, just hit return and make a new move. This is very nice because it is easy to make a mistake when you play on 4 boards of 16 squares.

--Bill Bendoritis--

REVIEW - CASINO CRAPS - CMS - $9.95

This is the best version of craps we've seen. It has all the betting options of a real casino game. The documentaiion is extensive and not only tells what the different opeions are, but what the house odds are against you.

It is a real time version in that it continues making passes until the point is made. It gives you a few seconds in between passes to allow you to break in to make additional betts.

A tremendous game if you want to learn to play craps the way they do in casinos.

--Bill Bendoritis--

Editors Note: All of the above 4 programs are human engineered. If you hit return without entering you bet first for example, it does NOT escape from the program, it just asks you the question once more.

REVIEWS

REVIEW - MEDIT - TOTAL INFORMATION SERVICES (TIS) - $5.95(+$3.95 for the cassette)

This is a line oriented text editor which allows you to insert and to modify or delete. It does not have provisions for output to a printer, but will save and read files to and from cassette.

It is hard to use because every line of input must start with an "I". If you forget to type in the I first, it will give you anerror message. TIS has informed us that they are working on an improved version which will not need the "I" as the first character in an input line.

Every line starts with some command. You can move up and down any number of lines you wish, and display any number of lines currently in your file.

This is a very inexpensive Text Editor.

REVIEW - CmC WORD PROCESSOR PROGRAM - Connecticut Microcomputer - $29.50

This is a very good word processor. It comes ready to load on a cassette. A manual comes with it that is clear and easy to understand with examples included. It can save and read files on cassette tape as well as print them out to a printer. You may note that the center page ad was composed with this word processor and printed using the Printer Adapter sold by Connecticut Microcomputer (reviewed last month)

You can format your output using Directives which you include in your file. You can set line length, margins, spacing, and centering.

This is a very good word processor. Next issue of the GAZETTE will hopefully be done using it. After using it extensively for ourselves we will present PART II of this review.

REVIEW - ACCOUNTING PACK 1 - Sawyer Software - $25

This is Fantastic. The documentation is superb and the program runs well, and does an amazing amount of things, all in 8K.

It sorts into acounts, generates reports, saves your data, and more. Next issue we will have a complete review by a businessman in Madison who is using the program. Till then, it does exist, and it looks GREAT!!!

REVIEW - SCHEDULE PLANNER - Sawyer Software - $15

The review on this program did not get here in time for printing. Be assured that it does exist, and we have seen it working. Next issue we will present the review as it should be.

REVIEW - BLACKJACK - J K Johnson - $ 5

This is an amazing program. 5 (YES FIVE) people can play at once and all the cards are shown on the screen, with graphic representation.

It keeps track of everyones winnings (or losings) and allows splitting the hand and such additions. Pete Weiler, who reviewed another Blackjack program for us, has agreed to review this program in depth next issue, telling you if it follows the rules correctly etc.

We had alot of fun playing, especially with 5 people. We won't give away the secret to displaying everyones hands at once graphically till next issue in Petes review. A great program, at a GREAT price!!!!!

MICRONOTIONS

NOTICE

MICROCOMPUTER RESOURCE CENTER NEWS.....

There will be a meeting Sunday Sept 17 for all MEMBERS of the Microcomputer Resource Center. (You are a member if you filled out a membership application form and paid the yearly dues). All members are welcome to come. If you can not attend you may send a proxy in your place. The future of the Center and its policies will be discussed. Center By-laws can hopefully be finalized and approved. For more information contact Len Lindsay, Director, Microcomputer Resource Center, 1929 Northport Dr, Room 6, Madison, WI 53704 (608)249-2666.

The Center publishes the PET GAZETTE which has grown to be about 80 pages in length. With our mailing list for the GAZETTE now at about 1500 and with about 40 letters a day we have to consider ways to insure that it will remain a free publication. Fortunately people have been sending donations to help pay the printing and mailing bills. Thank you very much for the donations.

The Center sponsors a program exchange for the PET computer referred to as the PET CASSETTE EXCHANGE. This has grown to the point that it takes too much time to keep it up. Thus a copying fee of $1 was started which helped finance it and slowed down the rush of requests. MANY requests have come in to BUY programs from the exchange. We hope to be able to do this soon. Then you will have the option to exchange or to buy. Please send us your suggestions on this topic.

The series of free GUIDES to areas in the Personal Computing field had to be cancelled due to the lack of response from the companies we sent short questionaires to. This is a disappointment.

The Center is staffed by VOLUNTEERS. The work is increasing rapidly. If you are able to help out please contact Len Lindsay. There is always something you can do to help. Especially if you are in the Madison area your help is needed and appreciated.

* *

M A G A Z I N E A R T I C L E S O F I N T E R E S T

Sorry, but we really have gotten behind in keeping track of PET related articles. If anyone out there would like to keep track and send us a typed list we sure would appreciate it. Some articles are:

CALCULATORS/COMPUTERS MAGAZINE:
a)Jan 78-Word Swap for the PET , Bob Albrecht, page 8
b)Feb 78-Computers for Parents & Teachers, Bob Albrecht, Page 14
c)Feb 78-Basic for Parents and Teachers, Bob & Karl Albrecht, Page 15
d)Feb 78-Microcomputers & Video Disc Systems: Magic Lamps for Educators? Ludwig Braun, Page 27 (good things on the PET)
e)March 78-Computers for Parents & Teachers, Bob Albrecht, Page 23
f)April 78-Basic for Parents & Teachers, Bob & Karl Albrecht, Page 43

PERSONAL COMPUTING MAGAZINE:Roulette on your PET, Conley, July 78,Pg22

CREATIVE COMPUTING, July 78, Commodore PET, Ludwig Braun, pg 24

PEOPLES COMPUTERS, every issue contains SPOT, section for PET info.

* *

To blink your screen on and off try: POKE59409, 52 : REM off
(from Bruce Beebe) POKE59409,60 : REM on

TNW 488/103
LOW SPEED MODEM

AUTO ORIGINATE, ANSWER, DIAL

The TNW488/103 Low Speed Modem is a full-service modem that puts you and your PET "on line". A PET program tape that allows you to use your PET as a terminal on a timesharing system accompanies the unit. Because the TNW488/103 connects to the telephone system through a CBT or CBS type Data Access Arrangement (not included), you can have your PET pulse-dial your phone calls, or answer calls from other computers. Baud rate (75 to 600 bits per second), character length, and parity are software selectable. TNW488/103 Low Speed Modem, assembled and tested: $320. Interface to CBT: standard; interface to CBS: $10 additional. Cable to CBS or CBT: $15.

USE YOUR PET AS A TERMINAL

TNW488/232
Serial Interface

Now you can interface RS-232-C and MIL-STD-188C serial peripherals such as printers, modems, CRT terminals, plotters, paper tape readers and punches - even other computers - to your PET. The TNW488/232 Serial Interface provides two independent BIDIRECTIONAL asynchronous serial data channels for your PET, plus additional input and output signal lines you can use to control peripheral devices. Baud rate (75 to 9600 bits per second), character length, and parity are strapped on the board independently for the two channels. TNW488/232 Serial Interface, assembled and tested: $280. Single channel version of TNW488/232: $240.

Both the TNW488/103 and the TNW488/232 incorporate a REAL IEEE 488 interface: other devices can be used on the bus with them, and they can be used with IEEE-capable computers other than PET. Each unit is a single 9 by 13 inch printed circuit board, with power supplies built right on the board: you provide only 117 VAC. An attractive cabinet is available ($35), as is a cable to connect to the PET's IEEE port ($20). An extensive documentation booklet accompanies each unit, and a 90 day warranty applies. California residents add 6% sales tax to all orders. We accept VISA and Mastercharge. Allow one to three weeks for delivery.

THE NET WORKS • 5924 QUIET SLOPE DRIVE • SAN DIEGO, CA 92120

Represented by

ASTRONICS • 4805 MERCURY STREET • SAN DIEGO, CA 92111 (714) 278-5441

Dealers: Write for distributorship information

Please excuse the somewhat facetious answer to your question on "standards". It is just that your wording, "...before it is too late," reveals the slightest hint of bias toward one expected answer.

In fact, however, except for the always-important requirement for good engineering and programming practices, including adquate readable documentation of any innovation or idea, I do not foresee the need to force "standards" on the Pet community beyond those inherent in the engineering of the machine.

For example, the two standards you set for PET music operation seem unnecessary to me, at least when called "standards" since they are both necessary for the operation of the machine, not merely efficient guides for communication with fellow cassette exchangerx.

STANDARD #1: (using pins M and N to connect the internal square wave generator to an external amplifier-speaker) I am sure you have also discovered you can make music (or interesting sounds, at any rate) by placing a transistor radio, tuned between stations, near the logic circuitry (i.e., next to the computer or ditting near your right hand on the keyboard) and running a program that uses long nested FOR loops. Is the standard designed to say exchange music programs should only use the square-wave music instead of this. Then it is a real standard. Or is it to require home-builders to connect only to pins M & N? In that case it seems unnecessary - a how-to-do-it suggestion instead of a real standard. (Oh yes, please tell your readers not to just connect speaker or earphones to CB2 and ground. You need the amplifier to isolate the computer lest Terrible Things happen to the 6522!)

STANDARD #2: (turn off the music) is a special case of the Law of Subroutines, known to wilderness campers and machine language programmers alike: "Put things back the way you found them. No one else wants to clean up your trash." It is a good programming practice, not a special standard for music subroutines alone.

Do we want standards for the Pet, before it is too late, you ask? The hell with it, I say. Let's have some creative energetic anarchy to explore, discover, and report as well as we can the amazing things that can be done with the box from Palo Alto.

Dr.Steve Irving

From the Editor: It's letters like these that keep us on the right track. Thank you very much Dr Irving. We do hope you will write again. We hope the use of the word "conventions" rather than "standards" will more clearly express our aims.

Let's have some more letters like this one. --LEN--

* * * * * * * * * * * IMPORTANT NOTICE BELOW * * * * * * * * * * * * * *

The PET GAZETTE is now distributed to the following contries as well as to almost all 50 states: CANADA, MEXICO, VENEZUALA, PUERTO RICO, GERMANY, BELGIUM, ENGLAND, TURKEY, ITALY, AUSTRALIA, IRELAND, FINLAND, AUSTRIA... Plus we now are getting about 40 letters every day as well as many long distance phone calls. It is a very busy place here.

-30-

SMITH BUSINESS SERVICES
ANNOUNCES

L I F E
By Dr. Frank Covitz
For the 8K PET

We are pleased to announce the release of two versions of LIFE by Dr. Frank Covitz, with an instruction program, on a single cassette.

LIFE 40 x 24 is an improved version of the program which Dr. Covitz published in Micro Magazine earlier this year. It features a speed of about 2 generations per second.

LIFE 64 x 64 is new. It is almost as fast, but also features full wrap-around at the edges.

These programs are written in PET Basic and machine language.

Send $10.00, check or money order, to:

SMITH BUSINESS SERVICES
P.O. Box 1125
Reseda, CA 91335

(Calif. residents add 6% sales tax)

MUSIC TIME

Bruce Adams sent us the short program below to test the effect of a POKE 59466 on music quality.

```
5000      A = 100
5010      POKE 59467,16: POKE 59464, 237
5020      FOR I = 0 TO 255
5030      PRINT I
5040      T = TI
5050      POKE 59466, I
5060      IF (TI-T) <A GOTO 5060
5070      NEXT I
5080      POKE 59464,0: POKE 59466,0: POKE 59467,0: END
```

you need your speaker/amplifier hooked to pins M & N of your User Port.

THE HUSTLERS
Ready to USE - "LOAD and GO" SOFTWARE

Your P E T (tm) can play a new "game"-
BUSINESS-SURVIVAL & PROSPERITY

Now Available- USEFUL, PRACTICAL low cost business programs, pre-recorded

Each program includes: MASTER pre-recorded on PerCom "Pilon"(tm) cassette with DEMONSTRATION program on Side 2, 2 PerCom "Pilon"(tm) record tapes and complete detailed directions for use.

GENERAL LEDGER: For small businesses of all types
Keeps individual accounts-
DEPOSITS: 4 types of INCOME, 4 types of NON-INCOME (loan repyts, ect)
WITHDRAWALS: 27 types of EXPENSES, 3 types of NON-EXPENSES
6 major account accumulated totals, including CURRENT BANK BALANCE
Price: $19.95 plus $1.50 shipping & handling- pre-paid

CHECKING ACCOUNT: For personal accounts
Keeps individual accounts-
DEPOSITS: 3 types of INCOME and NON-INCOME
WITHDRAWALS: 18 types (utilities, groceries, insurance, loans, mortgage pyts)
Running grand totals on DEPOSITS, WITHDRAWALS, BANK BALANCE ect.
Price: $19.95 plus $1.50 shipping & handling- pre-paid

RENT ACCOUNTS: For real estate owners and property managers
Keeps all financial details on individual rental properties:
Deposits held, rents received, expenses paid, payments to owners, balance in account- Plus running totals on entire rental operation
Price: $16.95 plus $1.50 shipping & handling- pre-paid

LEGAL DIARY: For lawyers
Keeps hours spent on client, expenses incurred, payments received, charges, balance owed, individual account totals and grand running totals
Price: $16.95 plus $1.50 shipping & handling- pre-paid

TRUST ACCOUNTS: For lawyers
Keeps all records on original cash in account, additional receipts, disbursements, balance in account for each individual client
Price: $16.95 plus $1.50 shipping & handling- pre-paid

Satisfaction guaranteed, or your money back

Dealer Inquiries Invited
COMPUTERS ONE
#306 Kahala Office Tower, 4211 Waialae Ave.
Honolulu, Hawaii 96816 Ph.(808) 737-2933

NAME OF SCHOOL:
NAME OF CONTACT PERSON:
ADDRESS:
CITY/STATE/ZIP:
PHONE:

* * * * * * * * * * * * * * * * * * * ** * * * * * * * * * * * * * * * *

We have received MANY requests to purchase programs on our exchange. Many users can't write programs to send us for the exchange. SO.......

Do you think programs on the exchange could also be sold with a royalty sent to the author???

Does a 25% royalty sound right???

What would you sugest as the selling price (ie $4 each, 5/$10,....)???

→ CAN WE SELL YOUR PROGRAMS (with royalty)?? ______ ⇐

* * * * * * * * * * * * * * * * * * * ** * * * * * * * * * * * * * * * *

VERY IMPORTANT

MANY people asked for us to include on the next questionaire (this one) something dealing with problems users have had. So ....

(use as much paper as you wish...type it and we can print it next GAZETTE...minus your name if you wish to be anonymous)

WHAT PROBLEMS HAVE YOU HAD WITH YOUR PET?
DID YOU WRITE/CALL COMMODORE ABOUT IT?
DID THEY WRITE BACK/GIVE YOU THE ANSWERS?
DO YOU NOW KNOW THE SOLUTION TO THE PROBLEM? (Please tell us)

********************************* **********************************

PLEASE LIST SOME THINGS YOU WOULD LIKE TO SEE ON THE NEXT QUESTIONAIRE:

PET GAZETTE, 1929 Northport Dr, Room 6, Madison, WI 53704/(608)249-2666

VALUABLE QUESTIONAIRE #2

PLEASE GIVE A PHOTOCOPY TO EVERY PET COMPUTER USER YOU KNOW.

NAME:
ADDRESS:
CITY/STATE/ZIP:
PHONE:

OPTIONAL DONATION ENCLOSED $______

It takes money to keep our services going.
-WE ARE NON-PROFIT-

* * * * * * * * * * * * * * * * * ** * * * * * * * * * * * * * * * *

PET COMPUTER CLUB IN MY AREA: (for the benefit of other users)

NAME:

CONTACT PERSON:

MEETING TIMES(ie Third Thurs...)

MEETING PLACE:

FOR INFO WRITE TO:

OR CALL:

☐ YES
(if there is no club in your area, may we use your name as a contact??)

* * * * * * * * * * * * * * * * * ** * * * * * * * * * * * * * * * *

PET COMPUTER DEALERS IN MY AREA: (for the benefit of prospective users)

NAME:
ADDRESS:
CITY/STATE/ZIP:
PHONE:

NAME:
ADDRESS:
CITY/STATE/ZIP:
PHONE:

* * * * * * * * * * * * * * * * * ** * * * * * * * * * * * * * * * *

SCHOOLS USING PET COMPUTERS: (to aid an educational program exchange)

NAME OF SCHOOL:

PET prints

COMMODORE PET HARD COPY OUTPUT USING PET ADA 1200

```
1000 REM THE FUNCTION PLOTTED IS:
1010 Y=X*X*X/4-3*X*X+2*X-1
READY.
```

X	Y
0	0
.5	.33773159
1	-.99616480
1.5	1.1905818
2	-.34885364
2.5	-1.34143229
3	2.09097333
3.5	-3.10640462
4	1.37325972
4.5	1.71562719
5	-4.52709179

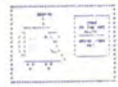
```
1000 REM THE FUNCTION PLOTTED IS:
1010 Y=X*SIN(4.0*X)
READY.
```

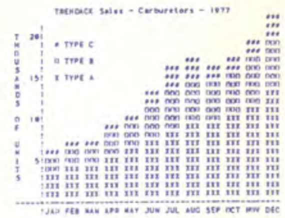
```
1000 REM THE FUNCTION PLOTTED IS:
1010 Y=X*SIN(4.0*X)
RDY.
```



```
1 OPEN 6,0:CMD 6:LIST
10 REM ARCSIN AND ARCCOS FUNCTIONS FOR THE COMMODORE PET
20 REM WRITTEN BY RICHARD MOSNER
30 REM              CONNECTICUT MICROCOMPUTER
40 REM              150 POCONO ROAD
50 REM              BROOKFIELD, CT 06804
60 REM
70 REM "Listed on a GE TermiNet 300
80 REM "using a CmC ADA 1200.
90 REM
100 REM OPEN OUTPUT FILE ON DEVICE #0.
110 OPEN 5,0
120 REM
500 REM GET A SINE VALUE
510 INPUT S
520 C=S
530 REM
1000 REM THE SINE OF THE ANGLE IS S
1010 REM IF THE SIN IS IN THE RANGE OF -1 TO 1, THEN COMPUTE.
1020 IF S<1 AND S>-1 GOTO 1050
1030 AS=90:GOTO2000
1040 REM THE ARCSINE IS AS
1050 AS=ATN(S/((1-S*S)^.5))
1060 REM THE RESULT IS IN RADIANS. CONVERT TO DEGREES.
1070 AS=AS*180/π
2000 REM THE COSINE OF THE ANGLE IS C
2010 REM IF THE COSINE IS IN THE RANGE OF -1 TO 1,
2011 REM        AND NOT = TO 0, THEN COMPUTE
2020 IF C<>0 THEN 2040
2030 AC=90:GOTO 3000
2040 IF C<1 AND C>-1 THEN 2070
2050 AC=0:GOTO 3000
2060 REM THE ARCCOS IS AC
2070 AC=ATN((1-C*C)^.5/C)
2080 REM THE RESULT IS IN RADIANS. CONVERT TO DEGREES.
2090 AC=AC*180/π
3000 PRINT#5," SIN,COS      ARCSIN       ARCCOS"
3010 PRINT#5,S;
3020 FOR N=1 TO 13-LEN(STR$(S)):PRINT#5," ";:NEXT
3030 PRINT#5,AS;
3040 FOR N=1 TO 13-LEN(STR$(AS)):PRINT#5," ";:NEXT
3050 PRINT#5,AC
3100 GOTO 500
READY.
```

```
SIN,COS      ARCSIN       ARCCOS
.1           5.73917048   84.2608295
SIN,COS      ARCSIN       ARCCOS
.2           11.536959    78.463041
SIN,COS      ARCSIN       ARCCOS
.3           17.4576031   72.5423969
SIN,COS      ARCSIN       ARCCOS
.33333333    19.4712204   70.5287796
SIN,COS      ARCSIN       ARCCOS
.4           23.5781785   66.4218216
SIN,COS      ARCSIN       ARCCOS
.5           30           60
SIN,COS      ARCSIN       ARCCOS
.6           36.8698977   53.1301024
SIN,COS      ARCSIN       ARCCOS
.7           44.427004    45.572996
SIN,COS      ARCSIN       ARCCOS
.72591002    46.5446035   43.4553965
SIN,COS      ARCSIN       ARCCOS
.8           53.1301024   36.8698977
SIN,COS      ARCSIN       ARCCOS
.9           64.1580673   25.8419328
SIN,COS      ARCSIN       ARCCOS
.999999      89.9189618   .0810382363
```





Powers of X

X	X^2	X^3	X^PI	X^5.25	X^.5
0	0	0	0	0	0
50	2500	125000	217506.221	830083735	7.07106781
100	10000	1000000	1919487.58	3.16227767E+10	10
150	22500	3375000	6861077.28	2.65753572E+11	12.2474487
200	40000	8000000	16939435.3	1.29339209E+12	14.1421356
250	62500	15625000	34146855.2	3.88315787E+12	15.8113883
300	90000	27000000	60548854.8	1.01131532E+13	17.3205081
350	122500	42875000	98271022.8	2.27173273E+13	18.7082869
400	160000	64000000	149498141	4.57946723E+13	20
450	202500	91125000	216427747	8.49095829E+13	21.2132034
500	250000	125000000	301345240	1.47772127E+14	22.3606798
550	302500	166375000	406540000	2.43727268E+14	23.4520788
600	360000	216000000	534342301	3.84052281E+14	24.4948974
650	422500	274625000	687112634	5.85861722E+14	25.4950976
700	490000	343000000	867239507	8.64499943E+14	26.4575131
750	562500	421875000	1.07713798E+09	1.24185712E+15	27.3861279
800	640000	512000000	1.31024718E+09	1.74269902E+15	28.2842712
850	722500	614125000	1.59602072E+09	2.39579338E+15	29.1547595
900	810000	729000000	1.90007007E+09	3.23424693E+15	30
950	902500	857375000	2.26357349E+09	4.29504822E+15	30.82207
1000	1000000	1E+09	2.65936546E+09	5.62341327E+15	31.6227766

Powers of X

X	X^2	X^3	X^PI	X^5.25	X^.5
0	0	0	0	0	0
50	2500	125000	217506.221	830083735	7.07106781
100	10000	1000000	1919487.58	3.16227767E+10	10
150	22500	3375000	6861077.28	2.65753572E+11	12.2474487
200	40000	8000000	16939435.3	1.29339209E+12	14.1421356
250	62500	15625000	34146855.2	3.88315787E+12	15.8113883
300	90000	27000000	60548854.8	1.01131532E+13	17.3205081
350	122500	42875000	98271022.8	2.27173273E+13	18.7082869
400	160000	64000000	149498141	4.57946723E+13	20
450	202500	91125000	216427747	8.49095829E+13	21.2132034
500	250000	125000000	301345240	1.47772127E+14	22.3606798
550	302500	166375000	406540000	2.43727268E+14	23.4520788
600	360000	216000000	534342301	3.84052281E+14	24.4948974
650	422500	274625000	687112634	5.85861722E+14	25.4950976
700	490000	343000000	867239507	8.64499943E+14	26.4575131
750	562500	421875000	1.07713798E+09	1.24185712E+15	27.3861279
800	640000	512000000	1.31024718E+09	1.74269902E+15	28.2842712
850	722500	614125000	1.59602072E+09	2.39579338E+15	29.1547595
900	810000	729000000	1.90007007E+09	3.23424693E+15	30
950	902500	857375000	2.26357349E+09	4.29504822E+15	30.82207
1000	1000000	1E+09	2.65936546E+09	5.62341327E+15	31.6227766

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```
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A LOWER PRICE MEANS MORE SALES, BUT A
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LEVEL OF PROFITABILITY.

 THE GAME IS OVER WHEN ONE COMPANY
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WAREHOUSE CHARGE FOR INVENTORY = 5%
INTEREST CHARGE ON BORROWED MONEY IS 5%

UNITS AND DOLLARS BELOW ARE IN THOUSANDS

PRESS ANY KEY WHEN READY
```

Dear Mr. Lindsay:

Your problem in issue #4 on avoiding unwanted keyboard strikes being interpreted as INPUTS was very elegantly put, since the clue for working it out is in the same issue at the bottom (?side) of page 7.

The apparent solution, as you suggested (line 90 of the enclosed program), is to set the buffer counter equal to zero before each INPUT statement. Another way would be to set the buffer contents equal to blanks (line 100); these would be printed after the prodding question-mark as leading blanks before the INPUT.

An interesting finding: there is a counter (loc 525) and a ten-character buffer (loc 527-536). However, since the counter numbers a maximum of nine characters, the tenth character (loc 536) is never displayed!

The enclosed display program (lines 110-170) will allow users to see how hitting keys changes the contents of this buffer.

\- - - - - - - - - - - - - - - - -

Sincerely,

Doc

STEFAN IRVING, M.D.

c/s = clear screen	c/l = cursor left
r/v = reverse	c/r = cursor right
	c/d = cursor down

LISTING OF PROGRAM TO DISPLAY CONTENTS OF KEYBOARD MEMORY BUFFER

```
 90 POKE 525,0  :  REM  zeroes buffer counter
100 FOR I=527 TO 536 : POKE I, 32 : NEXT I  :  REM  blanks buffer contents
110 ?"[CS]KEYBOARD BUFFER CONTAINS" PEEK(525) "CHARACTERS"
120 ?"[CD][CD][CD][RV][CL]LOC","[CL][CL][CL][CL]CONTENTS
129 REM  prints keyboard buffer contents continuously
130 FOR I=526 TO 536
140 PRINT I, CHR$(PEEK(I))
150 NEXT I
160 FOR J=1 TO 600 : NEXT J  :  REM  timed loop to relieve eyestrain
170 GO TO 110
```

* * * * * MORE GARBAGE BELOW * * * * * * * * *

Last issue I wanted to add some pictures and drawings. Someone snuck in a terrifying picture. We actually would like to print pictures a bit more beautiful. PLEASE SEND US some pictures, especially if your PET prints them out. The picture on the right is from CREATIVE COMPUTING, PO Box 789-M, Morristown, NJ 07960. Are we on the right track yet???

PS: the picture that originally could have been printed here got censored. Too bad!!!

ARTISTS OUT THERE: Please send us some pictures --could be robots, PET computers among any kind of background setting, etc. --THANKS--

Here's what the group did to a photograph of Marilyn Monroe:

MONROE IN THE NET

*** Dynamic Keyboard ***

Mike Louder

July.7,1978 (revised Aug.14,1978)

1148 Thompson Ave. 4, Glendale, Cal. 91201
213/246.0505

Would you like to add GOTO (expression) or GOSUB (expression) to your next BASIC program ? How about being able to add change or delete BASIC statement lines while a program is running ? Variations of a single fundamental procedure provide endless possibilities. The technique could be called programmable keyboard.

The decimal addresses for the keyboard buffer are 527 through 536.

The buffer counter address is 525.

If a BASIC program is interrupted with a STOP or END the keyboard moniter searches the keyboard buffer and executes any "ASCII" instruction that may have been typed in while the program was running. By using BASIC to "POKE" the buffer and appropriately interrupting the run mode, GOTO (expression) is easily implemented. Adding new "line's to your program is a more involved process with a few known disadvantages :

(1) Resident screen graphics will be interfered with.

(2) Changing BASIC "line's" will un-link and reset the variables list to zero.

(3) Subroutine pointers are lost.

If the routine is not used to change your BASIC code, only (1) above applies.

Try this GOTO (expression) demo.

```
10 X = 10
20 L = X*10 : GOTO 50000
100 X = X+10
400 X = X+10
600 X = X+10 : GOTO 20
700 PRINT " THE PET HAS A DYNAMIC KEYBOARD " : END

50000 PRINT "(CLR) (DOWN) (DOWN)" : PRINT "GOTO" L : POKE 525,1 : POKE 527,13 :
      PRINT "(HOME)" : END

REM : Clear screen and position GOTO L so that cursor is located on the left
      after PRINT "(HOME)" and exiting BASIC with END. "Load" buffer with a
      count of 1 and a 13 code which represents the same action as pressing
      the RETURN key.
```

A simple example using "L = (expression) : GOSUB 50000 ":

```
10 INPUT AREA CODE
20 L = AREA CODE*10 : GOSUB 50000
30 END
6060 PRINT " KENTUCKY "
6061 PRINT " ASHLAND,BUTLER,COVINGTON & LEXINGTON " : RETURN
ETC.
```


MORE →

The following utility routine is self explanatory. Call with a GOTO or RUN 60000.

```
60000 PRINT "(CLR) DELETE LINE NUMBERS FROM J TO K : 'J,K'
60005 PRINT
60010 PRINT " REM J & K ARE INTEGERS FROM 0 TO 65535.
60015 PRINT
60020 INPUT J,K
60030 KI = INT (K/256) : POKE 826, KI : POKE 827, K - KI*256 : GOTO 60050
60040 J = PEEK (828) * 256 + PEEK (829)
60050 PRINT "(CLR) (DOWN) (DOWN)"
60060 K = PEEK (826) * 256 + PEEK (827)
60070 FOR I = J TO J+8 : IF I > K THEN 60120
60080 PRINT I
60090 NEXT
60100 PRINT "GOTO 60040"
60110 J = J+9 : JI = INT (J/256) : POKE 828, JI : POKE 829, J - JI * 256
60120 POKE 525, 10 : FOR N = 0 TO 9 : POKE 527+N, 13 : NEXT
60130 PRINT "(HOME)" : END
```

60030 REM : Since K and J will be set to zero during the line deleting routine, K and J will be saved in a "safe" memory location outside of the "BASIC operating system".
The 198 byte second cassette buffer is safe if not in use.
Buffer address is :
Hex 033A through 03FF.
Decimal 826 through 1023.
J and K are stored as integers in the base 256 number system.

60040 REM : Recall updated J (see 60110).

60050 REM : Clear screen and position each group of 9 consecutive line numbers so that the cursor is in front of the top number after exiting BASIC at line 60130

60060 REM : Recall K.

60070 REM : Generate consecutive line numbers until I > K.

60100 REM : 10 th item on list. Leave keyboard monitor and return to BASIC.

60110 REM : Update and save J prior to leaving BASIC.

60120 REM : "Load" keyboard counter with a maximum count of 10 and fill the buffer with the ASCII code which represents the same action as pressing the RETURN key (13).

60130 REM : Position cursor at HOME then exit basic and execute 10 consecutive RETURNs then return to BASIC via line 60100.

Change line 60080 to :

```
60080 PRINT I; "?"; CHR$ (34) CHR$ (34) CHR$ (20); "THE PET HAS A DYNAMIC
      KEYBOARD.
```

And add : 510 END
Watch the action after : RUN 60000, K,J = 400, 500; Then : RUN 400.

Mike Richter provided the CHR$ ( ) combo which supplies the otherwise missing quotation mark.

Changing 60080 back to "PRINT I" will allow you to delete lines 400 through 510.

MORE→

As an example of generating new DATA lines as the result of a complex search-compare operation or involved math routine :

Routine :

```
60050 PRINT "(CLR) (DOWN) (DOWN)"
60070 FOR I = J TO J+8
60080 PRINT I; "DATA"; 2↑I;." , " ; I↑2
60090 NEXT
60100 PRINT "GOTO" L
60120 POKE 525, 10 : FOR N = 0 TO 9 : POKE 527+N, 13 : NEXT
60130 PRINT "(HOME)" : END
```

Program :

```
10 J=1 : K=9 : L=20 : GOTO 60050
20 J=10 : K=18 : L=30 : GOTO 60050
30 PRINT "THATS ALL FOLKS.
40 END
```

Using a technique similar to above, the PET "typed in" a large additional DATA table for the Joseph Roehrfg 3 - D TIC-- TAC - TOE game. (Kilobaud Apr 77). Now it takes only 24 seconds to make the first move.

I would like to hear about other Dynamic Keyboard applications.

Useful programming aids :
(1) Pet User Notes : vol. 1 #3 (Mar - Apr 78) : page 9 : CHR$ character codes.
(2) Pet User's Group Newsletter (Sphinx) vol. 0 #1 page 8 : Pet memory map.

Notes : Fundamental idea came from previous SR-52 relocating code programs submitted to HP-65 User Club and the line adding routine illustrated in the Peninsula School "DRAW 8K" (People's Computers Mar/Apr 78) program lines 7000 through 7040.

POKE address information was originally provided by Lennie Cooper and Leonard Tramiel of Commodore. Their fast response to my questions is greatly appreciated.

Finally, Mike Richter helped debug the procedure and pointed out how my first effort, which placed the GOTO L in the keyboard buffer, wasn't necessary. Mike has always provided programming tips when I needed it (which is often) .

DATA FILES: (COURTESY OF MIKE RICHTER) ↴

Due to the current tape reading problems of the ~~R&X~~ PET and to good practice in data tapes for exchange purposes, the following operations are recommended. I follow these conventions consistently!

1. Each tape has a first record of its name. (Since the PET does not give you the name when you find the file under program command, something like this is needed.)

2. When a record delimiter is required, use an upper-case backslash (left-half grey).

3. The last byte in the file is a backslash, my standard end-of-X delimiter.

4. Values in a numeric string are delimited by the number sign ("#"). I haven't had to use this yet, but I will shortly, and figure that this is a least-harm solution.

One other convention in my programs: An entry point at line 100 which presents the main program menu without disturbing data. This is especially important in the event of a keyboard entry error, inadvertant breaking with the STOP key, or in some cases a RETURN without data in response to an INPUT.

Dear Len:

Many thanks for the continuing high quality of the Gazette. Here are a few data for you; sorry that they'll probably miss your next issue. I'm sure that Tim has told you of our conversations, and of the fact that the Word Processor is appreciably improved over the previous version(s). I have a good deal of additional software which I will not be releasing through you (at least at this time), including a fascinating program which prepares and gives briefings; its interest stems in large part from the fact that I edit a page at a time - on the screen. (It works like a charm, and I'll be using it to brief a TRW corporate VP in a week or so on the uses of microcomputers in our business.)

Some specific data:

1) I have received the second cassette deck from Commodore, and it does not work with the older boards. In later boards, the connectors are two-sided; in the older ones, the cassette connectors (at least) contact only on the bottom. Alternatives: jumper the edge connectors to work on both sides, rewire the deck-2 connector. Possibly (also) use a Beeper (from HUH) which transposes the connections. I'll try the last of these soon and see whether it works; if not, I'll rewire the connector since I have two older machines. Note that if Commodore had wired the connector the other way it would work on all machines.

2) I have bought both the Beeper and the Petunia from HUH. Both function correctly. The Beeper must be modified (cut an extra key) to work with the old machines. The Petunia uses both the User Port (as advertised) and the second cassette port- and does not provide a second connector to allow plugging in cassette 2 at the same time.

3) Mike Louder and I have been working around some limitations, and have some useful code for you. Here we go:

Get a character and return .

```
Old way: 10 GET C$: IF C$>"" GOTO10
         20 GET C$: IF C$=""GOTO20
         30 RETURN

New way: 10 POKE525,0:WAIT525,1:GET C$: RETURN
```

Picture is from creative computing P.O. Box 789M Morristown, NJ 07960 MAY 78

Advance the tape between records

```
POKE59411,53: POKE514,0: WAIT514,16:POKE 59411,61: RETURN
```

Computed GOTO (GOTO A where A is a computed value)

```
PRINT "clr, cd,cd,cdGOTO"A"home":POKE525,1: POKE527,13:END
```

Computed instruction (instruciton is X$)

```
PRINT"clr,cd,cd,cd"X$"home":POKE525,1:POKE527,13:END
```

Comments: The first saves a lot of space (about 19 bytes vs. 39); the second avoids the (remote) possibility of the clock turning over during the conventional method and saves code; the latter pair are "impossible" functions in Commodore's BASIC which are of significant value in some esoteric code. The variations on the last are numerous, and neither of the ones which ends with "END" in fact terminates processing. A permutation on the last is a subroutine which executes the computed instruction, then returns to the program with everything (except the screeen) intact; note, however, that it cannot be used to write a BASIC line without destroying both the subroutine-return stack and all data:

```
PRINT"clr,cd,cd,cd"X$":RETURN:home":POKE525,1:POKE527,13:END
```

The variations are endless!

MORE →

4) I spent a fruitful day at Commodore, and saw their new keyboard, the printer undergoing life test, etc. The new ROMS are not ready yet, and in fact still have some software work in progress. Many of the old POKE locations will be changed, so the code above will not work until the addresses are changed. The ROM monitor is a dilly, and will probably justify replacement of the chips in itself; of course, it was advertised as part of the original package, but was not provided.

Please keep up the good work.

Sincerely yours,

Michael Richter

PET MEMORY MAP

0000-0002	JUMP,USER ADDRESS
0005	CURSOR COLUMN
000A-005A	BASIC INPUT BUFFER
005C	BASIC INPUT BUFFER POINTER
005E	CURRENT RESULT TYPE (FF)STRING (00)NUMERIC
005F	" " " (80)INTEGER(00)FLOATING POINT
007A-007B	START OF BASIC STATEMENTS
007C-007D	START OF VARIABLE TABLE
007E-007F	END OF VARIABLE TABLE
0080-0081	START OF AVAILABLE SPACE
0082-0083	BOTTOM OF STRINGS (MOVING DOWN)
0084-0085	TOP OF STRINGS (MOVING DOWN)
0086-0087	TOP OF MEMORY ALLOCATED FOR BASIC WORKING AREA
0088-0089	CURRENT PROGRAM LINE NUMBER
008A-008B	" " " " SAVED BY END
008C-008D	" " POINTER SAVED BY END
0092-0093	DATA STATEMENT PINTER
0094-0095	CURRENT VARIABLE SYMBOLS
0096-0097	CURRENT VARIABLE STARTING POINT
00AE-00AF	POINTER ASSOCIATED WITH BASIC BUFF TRANSFER
00B0	EXPONENT + $80 (FLOATING POINT ACCUMULATOR)
00B1	MANTISSA MSB (FLOATING POINT ACCUMULATOR)
00B2	" (FLOATING POINT ACCUMULATOR)
00B3	" (FLOATING POINT ACCUMULATOR)
00B4	" LSB (FLOATING POINT ACCUMULATOR)
00B5	SIGN OF MANTISSA (0 IF ZERO)(+ IF POS.)(- IF NEG)
00B8-00C0	DYADIC HOLDING AREA
00C2	START OF ROUTINE FOR FETCHING NEXT BASIC CHARACTER
00C9-00CA	PROGRAM POINTER
00D9	END OF CHARACTER FETCH
00E0	SCREEN POSITION ON LINE
00E1-00E2	POSITION OF LINE START
00E3-00E4	CURRENT TAPE BUFFER POINTER
00E5-00E6	END OF CURRENT PROGRAM
00EA	QUOTE MODE (00 IF NOT IN QUOTE)
00EE	NUMBER OF CHARACTERS IN FILE NAME
00EF	GPIB FILE #
00F0	GPIB COMMAND
00F1	GPIB DEVICE #
00F3-00F4	START OF TAPE BUFFER
00F5	CURRENT SCREEN LINE #
00F6	RUNNING CHECKSUM OF BUFFER
00F7-00F8	POINTER TO PROGRAM DURING VERIFY,LOAD
00F9-00FA	FILENAME STARTING POINTER
00FC	SERIAL WORD
00FD	NUMBER OF BLOCKS REMAINING TO WRITE
00FE	SERIAL WORD BUFFER
00FF	BASIC
0200-0202	CLOCK H.M.S.
0203	MATRIX COORDINATE OF LAST KEY DOWN(255 IF NONE)
0204	SHIFT KEY STATUS (1 IF DOWN)
0205-0206	JIFFY CLOCK
0207	CASSETTE 1 ON SWITCH
0208	CASSETTE 2 ON SWITCH
0209	KEYSWITCH PIA
020B	LOAD 0,VERIFY 1
020C	STATUS
020E	REVERSE VIDEO
020F-0218	KYBD INPUT BUFFER
0219-021A	HARDWARE INTERRUPT VECTOR
021B-021C	BREAK INTERRUPT VECTOR
0223	KEY IMAGE
0225	CURSOR TIMING
0228	TAPE WRITE
0242-024B	LOGICAL NUMBERS OF OPEN FILES
024C-0255	DEVICE NUMBERS OF OPEN FILES
0256-025F	R/W MODES OF OPEN FILES (COMMAND TABLE)
0262	GPIB TABLE LENGTH
0265	PARITY
0268	POINTER IN FILENAME TRANSFER
026C	SERIAL BIT COUNT
0270	TAPE WRITE COUNTDOWN
0273	LEADER COUNTER
0275	0 IF FIRST HALF BYTE MARKER NOT WRITTEN
0276	0 IF SECOND " " " " "
0279	CHECKSUM WORKING WORD
027A-0339	BUFFER FOR CASSETTE #1
033A-03F9	" " " #2
0400	START OF BASIC STATEMENTS
1FFF	END OF AVAILABLE RAM (8K VERSION)
7FFF	END OF AVAILABLE RAM EXPANSION
8000-8FFF	VIDEO RAM
9000-BFFF	AVAILABLE ROM EXPANSION AREA
C000-E0B0	MICROSOFT "8K" BASIC
E0B5-E27D	SYSTEM SET UP
E294-E66A	VIDEO DRIVER ,
E66B-E684	INTERRUPT HANDLER
E685-E75B	CLOCK UPDATE, KYBD SCAN(60HZ INT.)
E75C-E7D4	KYBD ENCODING TABLE
E800-EFFF	PIA'S
F0B6-F226	GPIB HANDLER
F346-F82C	FILE CONTROL
F82D-FD15	TAPE CONTROL
FD38-FFB2	DIAGNOSTICS
FFC0-FFEC	JUMP VECTORS
FFFA-FFFF	6502 INTERRUPT VECTORS (NMI NOT USED IN ORIG VERSIONS)

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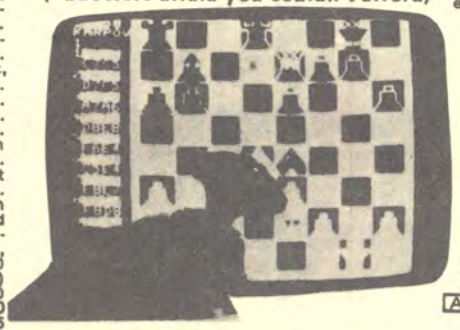

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PET HINTS by Jon Staebell

REPLACING INPUT STATEMENTS:

How many times have you demonstrated your PET to your friends and relatives? It's a sure bet you have shown off your PET several times. One of the most bothersome chores is to teach a new comer to always press the RETURN key after he/she has entered something. We "computer people" realize that the RETURN key signifies the end of input to the PET. But that's unnatural to the layman. And many times the naive user will press RETURN by mistake, causing the program to end. Then you have to step in and type "CONT". That mystifies and alienates the new comer. Wouldn't it be nice if the computer wouldn't quit when we just typed RETURN? And wouldn't it be nice if we could control what happens if the user makes a mistake like enter a letter in a numeric INPUT instead of the PET always responding with the cryptic "?REDO FROM START" error message? But how can we put these things under program control?

THE GET STATEMENT:

The form of the GET statement is:

```
GET V$        (V$ is any string variable)
```

I'm sure you've all seen lines in programs like this:

```
10 PRINT"PRESS ANY KEY TO CONTINUE"
20 GET A$:IF A$="" GOTO 20
```

....

The GET A$ statement will place the character that is being pressed on the keyboard into variable A$. If no key is being pressed, A$ will be set to a null string (""). Thus, line 20 GETs A$. If A$="" (i.e., no key pressed) then line 20 will GOTO line 20. If a key is pressed, the program continues. A$ will equal the character that you pressed. Add the following line:

```
30 PRINT A$:GOTO 10
```

Then run the program. Note that if you press the A key, A$ will equal "A". But how do we stop the program?? Presss the STOP key.

Y OR N:

Many times a program will ask a yes or no question (such as "DO YOU WANT INSTRUCTIONS?"). These are sometimes asked via INPUT statements. But then you have to type "YES" (or "Y") followed by the RETURN key to get instructions. But WHY?? Can't we use a GET statement instead? Of course we can! Try this program:

```
10 PRINT"IS YOUR NAME JON"
20 GET A$: IF A$="" GOTO 20
30 IF A$="N" GOTO 100
40 IF A$="Y" GOTO 200
50 PRINT"PLEASE ANSWER Y OR N"
60 GOTO 10
100 PRINT"YOUR NAME ISN'T JON!!!"
110 END
120 PRINT"HELLO JON"
130 END
```

Notice that if the user accidentally presses just RETURN, the program won't die. Even the layperson can understand the error message. (Or simply leave out line 50 and no message will be displayed. But any input besides Y and N will be ignored).

MORE→

BLINKING CURSOR: (PET HINTS - CONTINUED)

Often times, it is advantageous to have a blinking cursor like the one supplied with the INPUT statement. The idea is this: at the place where theinput is to take place, you simply "blink" a character (called a "cursor"). Thus, the white square that blinks when an INPUT statement is used is a blinking cursor.

NOTE: We will use a character other than the white square as our cursor. Otherwise, the naive user could get confused (when do I have to press RETURN? When don't I have to press RETURN?). In this article, I will use the underscore character (_). You may of course use any character you like, but we suggest you avoid the white square.

```
  5 xx=60:C$="_"
  7 PRINT"WANT DIRECTIONS?";
 10 GET A$:IF A$="" tHEN GOSUB 100:GOTO 10
 20 PRINT A$
 30 IF A$="Y" GOTO 200
 40 IF A$="N" GOTO 300
 50 PRINT"PLEASE ENTER Y OR N"
 60 GOTO 7
100 PRINT C$;                      (= print the cursor)
110 FOR ZZ=1 TO XX:NEXT ZZ        (wait a while)
120 PRINT"cl cl";                  (cl means cursor left key)
125 FOR ZZ=1 TO XX:NEXT ZZ        (wait a while)
130 RETURN
200 REM   PRINT INSTRUCTIONS:
          .......
300 REM   MAIN PROGRAM STARTS HERE
```

Line 5 sets up two important variables: XX and C$. XX times the blinking of the cursor. This, the lower XX is, the faster the cursor blinks. C$ is the cursor itself. Here, I use underscore (shift $).

Notice that in line 10, if no key is pressed, we GOSUB 100. Lines 100-130 are the blinking cursor subroutine.

First, the subroutine prints the cursor (C$). Then it does XX null loops. This gives you a chance to see the cursor. Line 120 prints a cursor left, then a space, and then another cursor left. This erases the cursor from the previous position. Then it pauses again (XX null loops) so that the cursor disappears. Thus, the cursor seems to "blink". If a key is not pressed, the process is repeated. When a key is finally pressed, the cursor disappears forever.

The blinking cursor can draw attention to a question and make the program easier to read. It isn't really difficult to implement, is it?

But a simple GET statement is awefully limited. What if we want to input more than one character?

MULTI-CHARACTER GETs

As you probably know, GET can retrieve only one character at a time. But, we <u>can</u> add those characters together to make one long string variable. For example:

```
  5 XX=60:C$="_":E$=CHR$(13)
  7 PRINT"ENTER YOUR SOCIAL SECURITY #";
 10 GET A$:IF A$="" GOSUB 100:GOTO 10
 20 PRINT A$;
 30 IF A$=E$ GOTO 200
 40 B$=B$+A$
 50 GOTO 10
100 PRINT C$;
110 FOR ZZ=1 TO XX:NEXT ZZ
120 PRINT"cl cl";                  (print cursor left, space, cl)
125 FOR ZZ=1 TO XX:NEXT ZZ
130 RETURN
200 PRINT:PRINT"YOUR SOCIAL SECURITY # is:"
210 PRINT B$
```

MORE→-43

(PET HINTS - CONTINUED)

The program is basically the same as the last. However, when a key is pressed, it is "added" to variable B$. This then becomes the string of characters entered. However, we need a way of deteding the end of input. That is variable E$. Here, I have used CHR$(13) which is the RETURN key. You may set E$ to anything you want in line number 5.

Th us, the program will keep adding the characters you enter until you press RETURN. Then A$ will equal E$ in line 30, so we GOTO 200. For the sake of simplicity, I just print out B$.

Note that you can change the end of input character by changing variable E$ in line 5. But you still have to enter an end of input character. So what advantage is there? Let's add some things...

Program Control of Input Errors:

For one thing, we know that every Social Security number has exactly 9 digits. No more, no less. Sowhy do we have to check for and end of input? We dont! Make these changes:

```
delete line 30
add line 45
45 IF LEN(B$)=9 GOTO 200
```

Now the program is "smarter" - and you dont have to be. Just type your Social Security number and that's it.

But what if the user includes the hyphens in his Social Security number? What if he just types RETURN? What if he/she accidentally enters a letter? We can check for that! Make these additions to the previous program:

```
12 IF A$="0" OR VAL(A$)>0 GOTO 20
13 PRINT
14 PRINT"ENTER ONLY NUMBERS"
16 IF A$="-" THEN PRINT"YOU DON'T HAVE TO ENTER THE
HYPHENS IN YOUR S.S. #."
18 B$="":GOTO 10
```

Line 12 checks to see if A$ (character just entered) is a number (VAL of a letter is always zero). If it is a letter, the program goes to line 20, which acts as it did in the previous example. Otherwise, there's an error. The program prints "ENTER ONLY NUMBERS". If a hyphen is entered (a common mistake), the program informs the user of his/her mistake. Then, B$ is set to "" and the user is given another chance to enter his/her Social Security number. Better than "?REDO FROM START", eh?

The examples I've shown are just simple examples. You can expand on them and create a truly flexible, easy to use standard subroutine through which you could do all your input. It could deal with errors in a logical, understandable manner. If you'd like to exchange ideas on this or any other topics, please feel free to drop me a note at my new (and permanent) address:

Jon Staebell
5102 Arrowhead Dr.
Monona, WI 53716
(608) 222-4211

EDITORS NOTE! I HOPE MORE USERS WILL SEND US SHORT ARTICLES LIKE THE ONE ABOVE. ALSO, any artists might create some fancy illustrations for future issues!!

A Low Cost Modem

by Micheal Holley

A modem is a device for connecting a terminal to the phone line allowing you to call a remote computer. Terminals cost $400 and up, while commercially available modems cost $150 to $300. You can beat the cost of the modem by building this low cost, easy to construct, no test equipment needed, modem.

The November 1977 issue of KILOBAUD had an article on a $35 modem that sparked my interest in modems. I built the circuit and it worked - with no sparks. I wanted to know more about modems so I got a copy of Motorola's AN-747 Application Note. This note gives all the inside theory and equations behind modems plus some design examples.

A LITTLE THEORY

The only thing the phone company will allow on its lines is voice, so how can a computer talk to a remote terminal? It's all done with tones. The computer uses tones around 200 Hz. to talk to the terminal, and the terminal uses tones around 1000 Hz. to talk back.

The modem at the computer is called an answer modem while the modem at the terminal is called an originate modem. You originate the call and the computer answers. In a full duplex system information can go both ways at the same time, unlike a half duplex (push to talk mobile radio type) system where you must either talk or listen. A filter is a circuit that will pass some frequencies and stop others. This is needed to prevent the tones your modem is sending from interfering with the tones it is receiving from the computer.

CONSTRUCTION

The entire circuit may be constructed on a $10 CSC Experimenter 300 prototyping board. This technique will allow easy modification or correction of mistakes. A small power supply will be needed to run this circuit. The requirements are +5 volts at 50 mA, +12 volts at 20 mA, and -12 volts at 20 mA. After the circuit is constructed, it is ready to be connected to the phone line and your terminal. No adjustments are needed!

PHONE LINE

Anything connected to the phone line must be registered with the FCC or a phone company protective coupler will be needed. If you try to order one of these couplers you will need to know the phone company buzz words. Ask for a Voice Connecting Arrangement OKT or CD6. The CD6 has auto answer which will allow the computer to answer the phone. These devices will cost about $3 a month plus $25 installation. If you do not fear the phone company, a 600 ohm to 600 ohm transformer will work just fine. CAUTION - the ringing voltage on the phone line is about 90 volts. If your phone is off the hook it can't ring, so this method is not suicidal.

To use the modem, the transformer must be switched off line so you may dial your phone. When the remote computer answers, switch your transformer on line. The computer will send a 2225 Hz. tone and about half a second later your modem will send a 1270 Hz. tone. You may now hang up your phone; the transformer will hold the line. When you are through using the modem be sure to switch off the transformer.

For most time share computers your terminal should be set to 110 or 300 baud full duplex. To check out the modem without using a remote computer, a 600 ohm earphone is all that's needed. A telephone is a good source for a 600 ohm earphone. Connect the earphone to the modem output and connect a full duplex terminal. Switch the modem to self test - ground SELFTEST (pin 16) and move ground from SWITCH HOOK (21) to RING (19). When finished testing be sure to switch out of selftest. A 2225 Hz. tone should be heard from the earphone. Now type any character on the terminal; the tone will vary and the character will be echoed back to the terminal. If this happens your modem is working. Move the ground from RING (19) to SWITCH HOOK (21) and the tone will lower to 1270 Hz. Remove the ground from SELFTEST (16) and the modem is ready to use. This modem does not have a threshold circuit so it is necessary to reset the modem before each use. This isn't hard; just turn it off and then back on.

WHAT IF IT DOESN'T WORK

Check each IC for proper voltages. MC6860 pin 12 should have +5 volts and the op amps need +12 volts on pin 8 and -12 volts on pin 4. The following pins of the MC 6860 must be grounded:

VSS (1)	SELFTEST (16)
THRESHOLD (7)	TEST (18)
RING (19)	DATA TERM READY (20)

NO TONE

Momentarily connect the earphone to TRANSMIT CARRIER (10) or DIGITAL CARRIER (11) - a tone should be heard. Be sure to use a 600 ohm or higher impedance earphone and only connect it for a few seconds at these pins (10, 11). If no tone is heard, the problem is the MC6860 or the 1 MHz. crystal.

TONE PRESENT BUT DOES NOT VARY

Momentarily ground TRANSMIT DATA (2). If the tone now changes the problem is the connection to your terminal or the 2N3904 circuit. Remove the connection between the LM311 pin 7 and the MC6860 pin 17; now connect RECEIVE CARRIER (17) to DIGITAL CARRIER (11). This bypasses the filter circuit. Now typing on the terminal or grounding TRANSMIT DATA (2) should cause the tone to vary. If the problem is in the filter circuit start at TRANSMIT CARRIER (10) and work around the loop to RECEIVE CARRIER (17) by listening with the earphone at the output of each op amp (pin 1 or 7) for the tone. When the tone stops look for an error in that op amp.

TONE VARIES BUT CHARACTERS DON'T ECHO

Momentarily ground TRANSMIT DATA (2) - the voltage at RECEIVE DATA (24) should go from +5 to 0 volts. If it does the problem is in the 2N3906 circuit or the connection to the terminal. If not, disconnect the 2N3906. If it still does not vary, the problem is in the MC6860.

I have built this circuit about five times and all of the problems were misplaced connections. This troubleshooting technique will find those mistakes faster than using an oscilloscope.

"A Low Cost Modem", by Micheal Holley, appears courtesy the Northwest Computer Club newsletter.

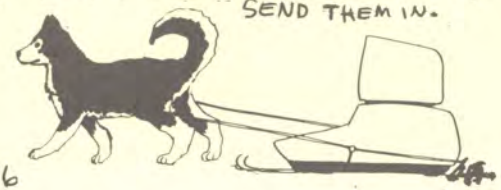
Above Reprinted from ACG-NJ NEWS
UCTI - 1776 Raritan Rd
SCOTCH PLAINS, NJ 07076

TIMER;

5 PRINT TI$,TI,"[UP]":GOTO 5

from BRUCE BEEBE

ANY PICTURES FOR NEXT ISSUE? SEND THEM IN.



Easy Auto Answer/ Originate Modem

by Roger L. Modeen

Have you ever considered putting your home computer "on-line"? It's easy, since the Motorola MC6860 "modem-on-a-chip" does most of the work for you! The accompanying schematic illustrates the simplicity of design, most of which was derived from two articles appearing in recent technical publications.[1] It is highly recommended that the prospective builder obtain one or both of these, since space does not permit going into the detailed theory of operation. If you run into problems, you'll want to have handy all the help you can get.

It has occured to me that one of the major obstacles to implementing a modem of this type is the apparent necessity (and expense) of renting from Ma Bell her snazzy CBS or CBT coupler, in order to tie into the phone line directly. A quick perusal of available literature and a carefully worded call to Bell Tel. yielded up the dark secrets within these gizmos[2] and a do-it-yourself version of this may be seen in the interface. A novel feature is the neon/photocell combination which generates a suitable "ring" indication for the 6860. The series 100K resistor assures a non-detectable static condition during hook-on periods, and the 1.4K resistor creates the "supervised" condition during modem activity (to insure that long-distance and pay phone calls are charged). If you deviate from these values, don't be surprised if the little men in the white coats (and white helmets) pay you a "friendly" visit.

Many component substitutions may be made from what items are on hand. The most critical components are those associated with the active filters (op amps A6-A11). Resistor values shown are standard 1% values, and no substitutions are permitted. The .01 uFd caps should be close tolerance types, or checked individually with a bridge to be within 3% of value. An alternative to this would be to "hand tune" the circuit by adjustment of resistors R3 thru R8, which are the frequency determining resistors of each op amp network. When an audio oscillator is swept thru the originate or answer frequency domains a reasonably flat-top bandpass characteristic should be observed at the outputs of A9 or A5 respectively.

The LED connected to the "CTS" output of the 6860 is used as a "carrier on" indicator, a common feature of most modems.[3] Relay K1 is a tiny DIP relay, an Electrol part with a 5V coil, although almost any small, low-voltage relay should be satisfactory as only negligible current or voltage is switched.

The ring indicator assembly N1 consists of a large cadmium photocell (Radio Shack) bonded with clear epoxy to an NE-2 miniature neon bulb. After the epoxy sets up, a coat of black paint is applied to the whole thing to prevent external light leaks.

With the exception of A1 and A2, which are National LM311 comparator IC's, op amps of the 741 type are used throughout. The 747, which is a dual version of the 741 is a good choice for compactness.

R1 controls the amplitude of the transmitted carrier as input to the phone line. This may vary, depending on your individual connection, and a good starting point would be a setting which creates a carrier amplitude of about -10dbm. The best technique is to strive for an amplitude which will be seen by another party as about an "average" signal level when compared to modems transmitting from other installations.

R2 is a line impedance balance resistor. The hybrid coupler consisting of A5 and T1 is intended to isolate transmit and receive data by about 20 db. If this condition is not met with R2=600 ohms, then some trimming of R2 or substituting a 1K pot may result in an optimum value of isolation in an individual case.

You may find that your telephone does not contain an unused set of contacts for use as the "hookswitch" closure as shown in the schematic. These contacts are handiest if within the phone, but may be located on the front panel of the unit as a normally open pushbutton switch.

The Motorola MC1488 and MC1489 line drivers/ line receivers have been abbreviated in the schematic. In the event that your installation requires the inclusion of RTS, CTS or DTR, these signals may be implemented with the unused sections of these drivers.

The MC6860 modem chip is available from many supoliers and I understand it is now being second sourced (Mostek?) at more attractive prices. Currently, they are under $20 in single quanity (prices advertised in the June and July issues of BYTE and KILOBAUD are between $10 and $20).

Circuitry may be switch-wired" on a very compact card, and tucked away inconspicuously. It will not interfere with outgoing calls, but must be turned off during times when "normal" telephone calls are anticipated, to avoid the lost tempers when a few non-computer types become irate when each of their calls to you are answered with a loud tone.

Hope that interest is good in this circuit. It can really be built for less than the cost of the "Pennywhistle" kit, and the advantages of automatic operation and answer mode is obvious. Another advantage is the greatly improved error rate, and freedom from interference possible with a truly "hard-wired" device. Alas, however, owing to the times we live in, I must include the following:

This circuit and article are offered as information only. No attempt is made to defraud, de-fang, defrock or discredit the Bell Telephone System, or to promote same; no attempt is made to encourage modification or alteration of any Bell Telephone equipment, and no liability is thereby assumed or implied by either the Northwest Computer Club, its officers, or the author of this article.

So be it. It works.

1 Garth Nash, Build Compact Modems, Electronic Design, January 1975.

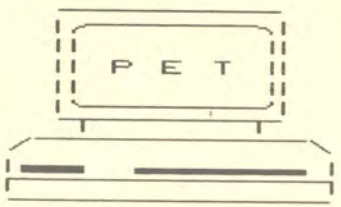
Jon M. DeLaune, Low-Speed Modem System Design Using The MC6860, Motorola Application Note AN-747, May 1975

2 Data Couplers CBS and CBT for Automatic Terminals, Bell System Publication 41802,May 1974

3 M6800 Microprocessor Applications Manual, Motorola, 1975, pp 3-28 to 3-37

"Easy Answer/Originate Modem", by Roger L. Modeen, appears courtesy of the Northwest Computer Club newsletter, issue 3-4 and 2-10.

REPRINTED FROM: ACG-NJ NEWS



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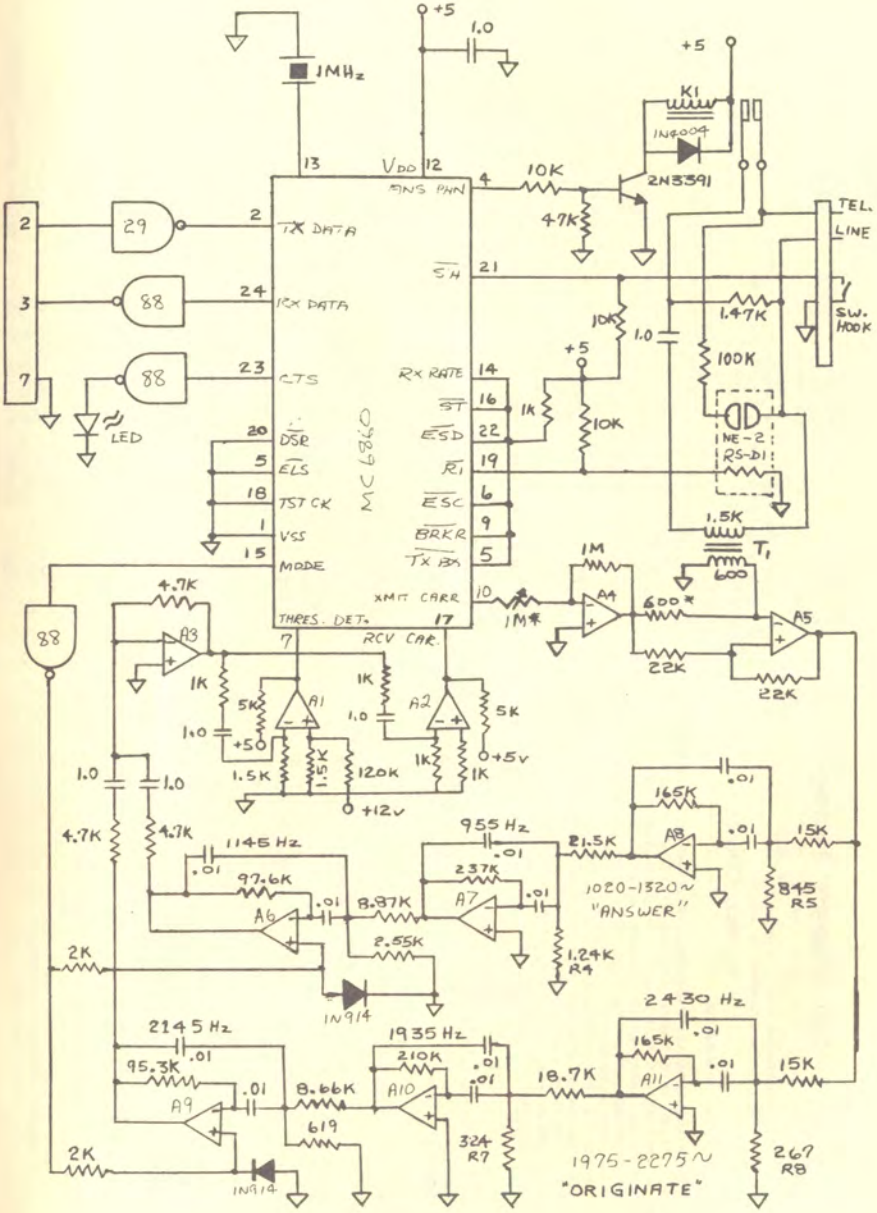


THE PET GRAPHICS

REPRINT From: Madison Computer Society News

PROPOSED TEMPORARY LOCAL STANDARD
FOR LOW SPEED DATA EXCHANGE BY MODEM

by Ken Clark

OVERVIEW

WHAT FOLLOWS IS REALY TWO SEPARATE PROTOCOLS (REFERED TO AS MODES IN THE TEXT) WITH A MEANS TO GET BACK AND FORTH BETWEEN THE TWO. IT IS A MIXTURE OF ARPA NET, CIE NET, NICL COMMUNICATION PROTOCOL, RUMORS OF WHAT PCNET WILL PROPOSE AND (I HOPE) A GOOD MEASURE OF COMMON SENSE. THIS PROTOCOL WOULD BE USED UNTIL SOMETHING BETTER (OR MORE UNIVERSAL) COMES ALONG.

1) TWO MODES (BLOCK & CHARACTER) ARE SUPPORTED
2) BLOCK MODE INCLUDES ERROR DETECTION AND RETRANSMISSION
3) PROTOCOL IS BAUD RATE INDEPENDENT.
4) CAN BE IMPLEMENTED IN MACHINE CODE AND ALMOST ALL BASICS AVAILABLE FOR MICROCOMPUTERS.

DEFINITIONS

INITIATING SYSTEM - COMPUTER SYSTEM OR TERMINAL WHICH SENDS THE FIRST DATA AFTER THE MODEMS HAVE "CUT THRU" AND ESTABLISHED CONTACT. ALSO CALLED INITIATOR.

RESPONDING SYSTEM - COMPUTER SYSTEM OR TERMINAL WHICH "TALKS" WITH THE INITIATING SYSTEM. ALSO CALLED RESPONDER.

(--NOTE-- INITIATING SYSTEM AND RESPONDING SYSTEM DESIGNATIONS ARE INDEPENDENT OF WHICH SYSTEM'S MODEM IS IN THE ORIGINATE AND WHICH IS IN THE ANSWER CONFIGURATION. THE "NORMAL" SITUATION WOULD FIND THE INITIATOR IN THE ORIGINATE CONFIGURATION AND THE RESPONDER IN THE ANSWER CONFIGERATION. THIS FORM MAY BE CHANGED BY AGREEMENT OF BOTH PARTIES. THIS ALLOWS A SYSTEM WITH AN "ORIGINATE ONLY" MODEM TO ACT AS RESPONDER WHEN CONVENIENT OR NECESSARY.)

RADIX-41 REPRESENTATION - SEE BYTE MAGAZINE, APRIL 1978, VOLUME 3, NUMBER 4 "CIE NET: A DESIGN FOR A NETWORK OF COMMUNITY INFORMATION EXCHANGES" FOR A COMPLETE DEFINITION AND EXAMPLES.

FULL DUPLEX - FOR THE PURPOSE OF THIS DISCUSSION FULL DUPLEX MEANS THAT ALL CHARACTERS RECEIVED ARE IMMEDIATELY RETRANSMITTED OR "ECHOED" BACK TO THE SENDING UNIT. THOUGH THIS IS NOT A TECHNICALLY CORRECT DEFINITION, IT IS IN KEEPING WITH RECENT DISCUSSIONS OF THE TOPIC IN HOBBIEST PUBLICATIONS.

HALF DUPLEX - CHARACTERS ARE NOT ECHOED TO THE SENDING UNIT. THE SAME COMMENTS APPLY AS FOR FULL DUPLEX ABOVE.

CHARACTER MODE PROTOCOL
(FULL DUPLEX)

-BOTH SYSTEMS ALWAYS BEGIN IN THE CHARACTER MODE.

-INITIATOR SENDS CARRIAGE RETURN CHARACTERS (0D HEX) 100 MILLISECONDS APART UNTIL THE RESPONDER BEGINS TRANSMISSION BY ECHOING A CARRIAGE RETURN - LINE FEED - NUL. THIS IS TO ALLOW SOME TYPES OF MODEMS TO "SYNC" THEIR BAUD RATE WITH THAT OF THE INITIATOR. IF THE RESPONDER DOES NOT BEGIN TRANSMISSION BY THE TIME 50 CARRIAGE RETURNS HAVE BEEN SENT A SYSTEM PROBLEM IS ASSUMED AND COMMUNICATION IS BROKEN OFF BY THE INITIATOR.

-AT THIS POINT THE RESPONDING SYSTEM MAY REQUIRE A SIGN ON PROCEDURE TO PROTECT SYSTEM INTEGRITY. THIS IS OPTIONAL AND WILL VARY FROM SYSTEM TO SYSTEM.

-ALL CARRIAGE RETURNS ARE ECHOED BY CARRIAGE RETURN - LINE FEED - NUL.

-COMMUNICATION MAY CONTINUE IN THE FULL DUPLEX CHARACTER MODE
OR
-COMMUNICATION MAY BE TERMINATED BY EITHER SYSTEM BY TRANSMISSION OF THE EOT CHARACTER (CONTROL D) (04 HEX) OR BY HANGING UP THE PHONE.
OR
-THE BLOCK MODE MAY BE ENTERED BY THE SENDING OF A DLE CHARACTER (CONTROL P) (10 HEX) BY THE INITIATOR.

-RESPONDER THEN WAITS FOR FILE TRANSMIT OR RECEIVE REQUEST FROM INITIATOR.

BLOCK MODE PROTOCOL
(HALF DUPLEX)

-BLOCK FORMAT CONSISTS OF A FOUR BYTE HEADER OPTIONALLY FOLLOWED BY A DATA BLOCK AND DATA CHECKSUM FOLLOWED BY THE ETB CHARACTER. WITH THE EXCEPTION OF THOSE BLOCKS CONTAINING THE ACK OR NAK MESSAGE TYPE CODES ALL BLOCKS TRANSMITTED REQUIRE EITHER AN AFFIRMATIVE OR NEGATIVE RESPONSE. IF THE RESPONSE IS NOT AFFIRMATIVE (ACK) OR NO RESPONSE IS RECEIVED WITHIN 15 SECONDS OF THE END OF THE BLOCK, THE PREVIOUS BLOCK IS TO BE RETRANSMITTED.

-------- HEADER --------

SOH — START OF HEADER CHARACTER (CONTROL A) (01H). ALL BLOCK MODE TRANSMISSIONS BEGIN WITH THIS CHARACTER.

MTC — MESSAGE TYPE CODE - ONE OF THE FOLLOWING

- 'R' — SIGNIFIES THAT THE UNIT IS READY TO RECEIVE A FILE. FILE NAME MAY OPTIONALLY BE PLACED IN THE DATA BLOCK AREA.
- 'T' — SIGNIFIES THAT THE UNIT IS READY TO TRANSMIT A FILE. FILE NAME MAY OPTIONALLY BE PLACED IN THE DATA BLOCK AREA.
- 'A' — THE DATA BLOCK WHICH FOLLOWS IS COMPOSED OF ASCII TEXT INCLUDING CR'S AND LF'S BUT NO OTHER NON PRINTING CHARACTERS.
- 'B' — THE DATA BLOCK WHICH FOLLOWS IS A BINARY FILE IN RADIX-41 REPRESENTATION.
- DLE — (CONTROL P) (10H) REQUEST TO RETURN TO FULL DUPLEX CHARACTER MODE.

CONTINUED →

Continued-

ETX (CONTROL C) (03H) END OF TEXT - THE PREVIOUS BLOCK SENT WAS THE LAST BLOCK OF THE FILE.

ACK (CONTROL F) (06H) AFFIRMATIVE ACKNOWLEDGEMENT TO THE PREVIOUS TRANSMISSION.

NAK (CONTROL U) (15H) NEGATIVE ACKNOWLEDGEMENT TO THE PREVIOUS TRANSMISSION.

EOT (CONTROL D) (04H) REQUEST TO TERMINATE COMMUNICATIONS.

DBC DATA BYTE COUNT - NUMBER OF BYTES TO BE TRANSMITTED IN THE DATA BLOCK WHICH FOLLOWS. ZERO IF NO DATA BLOCK. 256 MAXIMUM. DOES NOT INCLUDE THE DATA BLOCK CHECKSUM, THE ETB OR THE STX CHARACTERS.

HCS HEADER CHECKSUM - BINARY SUM OF SOH THRU DBC TRUNCATED TO THE EIGHT LEAST SIGNIFICANT BITS IN RADIX-41 REPRESENTATION.

-------- DATA --------

STX START OF TEXT - (CONTROL B) (02H) WHAT FOLLOWS IS THE DATA BLOCK.

DB DATA BLOCK - ONLY VALID CHARACTERS IN THIS BLOCK ARE THE PRINTABLE ASCII CODES, CR AND LF. BLOCK MUST BE THE NUMBER OF CHARACTERS INDICATED IN THE DBC.

DCS DATA CHECKSUM - BINARY SUM OF STX THRU DB TRUNCATED TO THE EIGHT LEAST SIGNIFICANT BITS.

-------- ENDING --------

ETB END OF TRANSMISSION BLOCK - (CONTROL W) (17H) LAST CHARACTER IN EVERY TRANSMISSION
DEMANDS A RESPONSE (EITHER ACK OR NAK) FROM OTHER UNIT UNLESS THE MTC OF THIS BLOCK IS ACK OR NAK.

ERRORS

FOLLOWING ARE ERRORS WHICH CAN BE DETECTED AND CAUSE A NEGATIVE RESPONSE AND THEREFORE RETRANSMISSION OF A BLOCK.

1) MTC OTHER THAN THOSE LISTED
2) HCS ERROR
3) DATA BLOCK FOLLOWING HEADER WITH ZERO IN DBC
4) STX CHARACTER NOT FOUND
5) CHARACTERS OTHER THAN CR, LF OR PRINTABLE ASCII CODES IN DB AREA
6) DCS ERROR
7) ETB FOUND TOO SOON

NEGATIVE ACKNOWLEDGEMENT IS NOT SENT UNTIL AFTER THE ETB CHARACTER IS FOUND.

SOME NOTES

A BASIC PROGRAM CAN BE SENT A LINE AT A TIME (EACH DATA BLOCK IS THE LENGTH OF THE LINE BEING SENT) USING THE MTC OF 'A' AND FED DIRECTLY TO THE BASIC INTERPRETER OR COMPILER BY CHANGING ITS I/O VECTORS.

BESIDE THE OBVIOUS EXCHANGE OF DATA BETWEEN TWO MANNED COMPUTERS IT IS POSSIBLE, WHILE AT ANOTHER COMPUTER, TO:

1) "CALL UP" YOUR OWN COMPUTER (IF YOU HAVE AUTO ANSWER CAPABILITIES)
2) SIGN ON
3) PREPARE A FILE FOR TRANSMISSION
4) SET YOUR COMPUTER TO THE BLOCK MODE
5) PREPARE YOUR HOSTS COMPUTER TO RECEIVE THE FILE
6) SET YOUR HOSTS COMPUTER TO THE BLOCK MODE
7) EXCHANGE THE FILE
8) RE-ENTER THE CHARACTER MODE
9) SIGN OFF ON YOUR COMPUTER

THE SAME SEQUENCE AS ABOVE APPLIES FOR TRANSMISSION OF A FILE FROM YOUR HOSTS COMPUTER TO YOUR OWN COMPUTER.

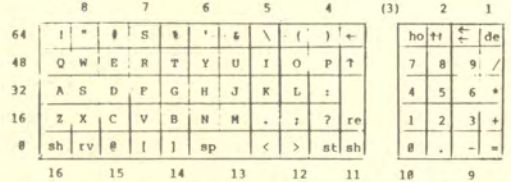
THE OBJECT IS TO TRANSMIT DATA BETWEEN COMPUTERS WITH THE HIGHEST DEGREE OF ACURACY POSSIBLE IN THE SHORTEST TIME POSSIBLE. TO THAT END THE RADIX-41 REPRESENTATION WAS CHOSEN OVER THE MORE FAMILIAR HEX REPRESENTATION (INTEL FORMAT TYPE).

TIME REQUIRED TO TRANSMIT DATA FILES

	4K FILE				8K FILE			
	HEX		RADIX-41		HEX		RADIX-41	
BAUD RATE	MIN.	SEC.	MIN.	SEC.	MIN.	SEC.	MIN.	SEC.
110	12	58.18	9	44.00	25	54.91	19	26.55
150	9	30.67	7	8.27	19	.27	14	15.47
300	4	45.33	3	34.13	9	30.13	7	7.73
450	3	10.22	2	22.76	6	20.09	4	45.16
600	2	22.67	1	47.07	4	45.07	3	33.67

FROM THE USERS STANDPOINT IT IS DESIRABLE TO MAKE THE DATA BLOCKS AS LONG AS POSSIBLE (256 MAX) TO DECREASE TOTAL TRANSMISSION TIME.

PET Matrix-Decoded Keyboard



For use with Peek (515) and Peek (516)
From PET PAPER, Box 43, Audubon, PA 19407

A Listing of File Manager - available on the PET CASSETTE EXCHANGE. It reads and writes DATA tapes reliably. Use it to leave messages etc.

```
   ***FILE MANAGER***RELIABLE DATA TAPE READING/WRITING***
 10 PRINT"3 FILE MANAGER-CUMBERTON "
 12 REM***DENNIS CUMBERTON,5086 SILVER HILL CT, SUITLAND, MD 20028
 45 PA$="":PB$="":PC$="":PD$="":I=0:J=0:K=0:L=0:N=0:Z$=""
 50 PRINT"3R2EAD OR W2RITE OR N2IETHER? " — RVS the first letter only
 55 GET A$:IF A$=""THEN GOTO 55
 60 IF A$="R" THEN GOTO 615
 65 IFA$="N" THEN GOTO 760
 85 PRINT"UPPER CASE Q(q) SIGNALS THE END"
 90 PRINT"OF YOUR INPUT. PRESS ANY KEY TO GO"
 95 GET G$:IF G$="" THEN GOTO 95
100 PRINT"3":REM ***WORD PROCESSOR
110 FOR I=1TO240
115 PRINT"x2=";:GETP$:IF P$=CHR$(34) THEN P$="'":REM***"[RVS]*[RVSOFF,LEFT]
117 IFP$=CHR$(13) THEN PRINT" ";
120 IF P$=""THEN PRINT" =";:FORQQ=1TO30:NEXTQQ :GOTO 115:REM***PROVIDES CURSOR
125 IFP$="q" THEN GOTO 500
130 PRINTP$;:PA$=PA$+P$:NEXTI
160 FOR J=1TO240
165 PRINT"a2=";: GET P$:IFP$=CHR$(34) THEN P$="'":REM***"[RVS,A,RVSOFF,LEFT]"
167 IF P$=CHR$(13) THEN PRINT" ";
170 IF P$=""THEN PRINT" =";:FORQQ=1TO40:NEXTQQ: GOTO 165:REM***PROVIDES CURSOR
175 IF P$="q"THEN GOTO 500
180 PRINTP$;:PB$=PB$+P$:NEXT J
210 FOR K=1 TO 240
215 PRINT"x2=";:GET P$:IF P$=CHR$(34) THEN P$="'":REM**"[RVS,X,RVSOFF,LEFT]"
217 IF P$=CHR$(13) THEN PRINT" ";
220 IFP$=""THEN PRINT" =";:FORQQ=1TO50:NEXTQQ: GOTO 215:REM***PROVIDES CURSOR
225 IFP$="q"THEN GOTO 500
230 PRINTP$;:PC$=PC$+P$:NEXT K
260 FOR L=1 TO 240
265 PRINT"z2=";:GET P$:IF P$=CHR$(34) THEN P$="'":REM**"[RVS,Z.RVSOFF,LEFT]"
267 IF P$=CHR$(13) THEN PRINT" ";
270 IF P$="" THEN PRINT" =";:FORQQ=1TO60:NEXTQQ:GOTO 265:REM***PROVIDES CURSOR
275 IF P$="q" THEN GOTO 500
280 PRINTP$;:PD$=PD$+P$:NEXT L
290 GOTO 500
295 REM***SUBROUTINE TO NAME FILES***
300 GETA$:IFA$=""THEN GOTO 300
325 PRINTA$;:F$=F$+A$
330 IF A$=CHR$(13) THEN RETURN
340 GOTO 300
350 REM***USER EDIT SECTION***
355 IF PD$="" THEN PRINT"DO YOU WANT TO ADD 6 LINES? (Y2ES OR N2O)";:GOSUB 490
360 IF PD$="" AND A$="Y" THEN GOTO 260
365 GOTO 475
430 GOSUB 490:REM SELECT TAPE 1 OR 2 (TO READ)
435 IF A$="Y" THEN OPEN 1,2,0,F$
440 IF A$="Y" THEN GOTO 640
445 RETURN
450 GOSUB 490:REM TO SELECT TAPE 1 OR 2 (TO WRITE)
460 IFA$="Y" THEN OPEN 1,2,1,F$
465 IF A$="Y" THEN GOTO 570
470 RETURN
475 PRINT"ABORT NEXT AUTO LOAD? (Y2ES OR N2O)":GOSUB 490
480 IF A$="Y" THEN GOTO 45
485 PRINT"DUMP? (Y2ES OR N2O)"
490 GET A$:IF A$="" THEN GOTO 490
495 RETURN
```

[RVS] [RVS OFF]

MORE →

Continued—File Mangger—

```
500 REM***DUMP AND PRINT SUBROUTINE***
505 PRINTCHR$(13);PA$;PB$;PC$;PD$
510 REM ***WRITE TO A FILE***
525 PRINT"FILE NAME? ";
530 F$="":GOSUB 300
535 IF F$=CHR$(34) THEN F$=""
540 REM***?"TAPE 2 OPTION? (Y2ES OR N2O)":GOSUB 450
550 PRINT:PRINT:OPEN 1,1,1,F$
565 Z$=F$
570 PRINT#1,Z$;PA$;PB$;PC$;PD$
580 CLOSE 1:GOTO 710
590 REM***OPEN FILES FOR READING***
615 PRINT:PRINT:PRINT"FILE NAME? ";
620 F$="":GOSUB 300
625 IF F$=CHR$(34) THEN F$=""
630 REM PRINT:PRINT:PRINT"TAPE 2 OPTION? (Y2ES OR N2O)":GOSUB 430
635 PRINT:PRINT:OPEN 1,1,0,F$
640 FOR I=1 TO 240
645 GET#1,Q$:IF ST>0 THEN 700
650 PRINTQ$;:PA$=PA$+Q$:PE$=PA$:NEXTI
655 FOR J=1 TO 240
660 GET#1,Q$:IF ST>0 THEN 700
665 PRINTQ$;:PB$=PB$+Q$:PE$=PB$:NEXT J
670 FOR K=1 TO 240
675 GET#1,Q$:IF ST>0 THEN 700
680 PRINTQ$;:PC$=PC$+Q$:PE$=PC$:NEXT K
685 FOR L=1 TO 240
690 GET#1,Q$:IF ST>0 THEN 700
695 PRINTQ$;:PD$=PD$+Q$:PE$=PD$:NEXT L
700 CLOSE 1:IF PC$="" THEN GOTO 710
705 PRINT"PRESS G2 TO GO";:GOSUB 850
710 PRINT:PRINT"REDUMP? (Y2ES OR N2O OR E2SCAPE)";
725 GETA$:IF A$="" THEN GOTO 725
730 IF A$="E" THEN GOSUB 350
735 IFA$="Y"THEN GOTO 510
740 Z$=RIGHT$(PE$,2):IF LEFT$(Z$,1)="*" THEN GOTO 760
745 IF LEFT$(Z$,1)="v"THEN GOTO 45
750 IF LEFT$(PA$,1)="*" THEN GOTO 780
755 GOTO 45
760 FOR N=1 TO 400
765 PRINT"BYE";:NEXT N
```

MORE

Some last minute improvements on this listing ↓

Upon closer examination I discovered:
In the original listing I provided I collapsed/emitted a couple of lines of code. It appears that I began typing line 300 and completed typing 320, emitting 310.

The difference is very significant in that line 310 permits the reading and writing of UNNAMED files. The ability to read any file is very important and will increase the utility of the program several fold....if you are anything like I am you probably don't easily recall the name of the file you just finished naming. Lines 930-960 could well be added to help the user.

```
300 GET A$: IF A$=""THEN GOTO 300
310 PRINT A$;:F$=F$+A$:IFA$=CHR$(34)THEN RETURN
320 GET A$: IF A$=""THEN GOTO 320
325 PRINT A$;:F$=F$+A$
330 IF A$=CHR$(13)THEN RETURN
340 GOTO 320
```

Lines 300 to 340 should be adjusted to read as above and the following should be added for clarification.

```
930REM"USE OF A SINGLE QUOTES MARK (")
940REM"AS A FILE NAME WILL CAUSE AN
950REM"UNNAMED FILE TO BE CREATED OR
960REM"ANY FILE TO BE READ
```

Sincerely,

Dennis Cumberton

Continued Listing?

```
770 T=TI
775 IF TI-T<50 THEN 775
778 END
780 PRINT"LOADING NEXT FILE ON AUTO COMMAND":F$=""
785 PA$="":PB$="":PC$="":PD$=""I=0:J=0:K=0:L=0:N=0:GOTO 635
850 REM***PAGE CONTROL***
855 GET G$:IF G$="" THEN GOTO 855
860 IF G$="G" THEN RETURN
900 REM***TAPE 2 COMMANDS ARE AT 540 AND 630***
910 REM***REMOVE THE [REM] AND THE PROGRAM EXPANDS
920 REM***FOR 2 TAPE RECORDERS
```

TID-BITS by Bill Bendoritis

I've had my "Pet" for a little over three weeks now, and spent alot of time discovering simple things. The purpose of this, what I hope will be a continuing addition to the "Pet Gazette", is going to be geared at helping the absolute beginner with no computer background, like myself, figure somethings out which otherwise might take a long time to discover.

One of the best helps I've had is looking at other peoples software. I was very fortunate in that the day my Pet arrived at the Madison Computer Store was the same day as the Pet user group meeting in Madison. At that meeting I was able to copy programs written by some of the members even though I had nothing to give in return. I want to thank Tim Onasko and Pete Weiler for letting me copy some of their software and especially Len Lindsey who not only gave me some of his programs but a couple hours of his extremely busy schedule to help with some of my problems. In fact it was during that conversation that Len asked if I would write down some of these simple things for the Pet Gazette. These were problems taken for granted by more experienced computer enthusiasts or published long ago by some of the computer magazines. There are those of us who are new to the Pet and computers in general.

As I mentioned before, obtaining someone elses software, boughten or whatever is the biggest help. When I couldn't figure out how to do something I was writting, I would look at the listing of a program that did something similar, to try to figure out how it was done. Just looking at a listing in a book won't do it, you have to see the program running to realize how it works.

It took me weeks to figure out that when turned on, the Pet is always in graphics mode. To get into lower case you have to type POKE 59468,14. To return to graphics without turning it off type POKE 59468,12.

When I would run a program I got errors because occasionally what was intended to be two lines was listed as one. What was happening was now and then the last character of a statement was the last character of the line. After typing it, the cursor would drop to the next line. I just typed a new line number and went on. You can't do that, you must hit return at the end of a statement even if the cursor is where you want it.

In the same vein, when I noticed an error back in a program I would use cursor movements to get to the error, correct it, and use cursor movements to get back to where I was. When I ran the program the error was still there. The cure - after changing a line in anyway, you must hit return for the computer to recognize it.

Another problem of inserting. If you want to insert or change a cursor movement inside a quote you can't just type it in. All that happens is your cursor moves. First you must insert a space by holding down the shift key and typing the INST key. Then fill the space made with the cursor movement.

In trying to copy programs for the Pet out of "People Computers" there were things they did I just couldn't figure out. It turns out that in the past they have set-up programming standards that they are using in current issues. A plea to all who print software, please print your standards every issue for all newcomers. The one that really "got me" was using square brackets [ ] to denote that the key is shifted. In other words, hold down the shift and type the key shown. What is listed on the screen might not be what is shown in the magazine although it is the correct character.

MORE →

This is getting so lengthy the "Pet Gazette" probably won't print it all. Next time will be strictly problems - not so much B.S.

Two more quickies - I'd like to apologise to and thank my wife and kids, who will be doing without a few things while I pay for my Pet, and who have only seen the back of my head the past three weeks. Maybe I should write on how to own a Pet and still have time to maintain your home and family - once I figure out how to do it.

And finally, my Pet does something odd - I think. Whenever I try to DIM a string with the letter "O" followed by the letter "N" in it, I get a syntax error. Examples MON$, ON$, KLZONF$, etc. Does anyone know why? Is my Pet unique? So far I've found no other combination that generates the error.

```
   ***RENUMBER***
59900 REM LIST THIS PROGRAM, LOAD TARGET PROGRAM, "RETURN" 60000-, RUN 60000
60000 INPUT "RENUMBER OLD LINE NUMBERS FROM";L1: INPUT "THROUGH";L2
60010 INPUT "AS NEW LINE NUMBERS FROM";L: INPUT "IN STEPS OF";D
60020 K=1025: G=256
60030 N=PEEK(K+2)+G*PEEK(K+3)
60040 IF N=0 OR N>L2 GOTO 60000
60050 IF N>=L1 THEN PRINT N,L: POKE K+2,L-INT(L/G)*G: POKE K+3,INT(L/G): L=L+D
60060 K=PEEK(K)+G*PEEK(K+1): GOTO 60030
READY.
   ***AUTO LINE NUMBERER***
 3 NS= 100
 4 PRINT"3";NS;:REM***[CLR,DOWN,DOWN,DOWN]
 5 GET K$:IF K$="" GOTO 5
 6 PRINTK$;:IF ASC(K$)<>13 GOTO 5
 7 NS=NS+10:PRINT"3NS=";NS:PRINT"RUN 3":REM***"RUN 3[HOME]"
 8 POKE 525,4:FOR I=1TO 4:POKE525+I,13:NEXT:END
READY.
```

NS = Next line number

```
   ***AUTO LINE ERASER***
 3 NS= 100
 4 PRINT"3";NS;:REM***[CLR,DOWN,DOWN,DOWN]
 5 GET K$:IF K$="" GOTO 5
 6 PRINTK$;:IF ASC(K$)<>13 GOTO 5
 7 NS=NS+10:PRINT"3NS=";NS:PRINT"RUN 3":REM***"RUN 3[HOME]"
 8 POKE 525,5:FOR I=1TO 5:POKE525+I,13:NEXT:END
READY.
   ***TAPE COPIER-GARY WALKER***
 100 REM--PROGRAM TO LOAD A FILE
 110 REM--AND STORE ON ANOTHER TAPE
 120 REM
 130 OPEN 1,1,0,"FILE"
 135 PRINT"FOUND THE FILE
 140 REM--INFO IS LOADED INTO MEMORY
 150 REM--THEN ONTO THE OTHER TAPE
 160 DIM A$(200)
 170 I=1
 180 INPUT#1,A$(I)
 190 IF (ST) AND 64 THEN 500
 200 PRINTA$(I):I=I+1:GOTO180
 500 REM--NOW WRITE TO NEW TAPE
 505 PRINTI
 510 PRINT"PLEASE LOAD IN NEW TAPE
 520 GETB$:IFB$=""THEN520
 525 OPEN2,1,1,"FILE"
 530 FORX=1TOI-1
 535 PRINT#2,A$(X):NEXT
 540 PRINT#2,A$(X)
 550 CLOSE2
READY.
```

A few short programs to type in and try out.

Send us a listing of your neat subroutine or program. Jan

DEMO $1 per program copying/handling fee

1. ABSTRACT ART-Pat ODonovan. You tell the PET how well you like horizontal lines and vertical lines. The PET then draws a very well done picture, titles it and waits for you to ask for the next picture.
2. ASSEMBLY SHOW-Steve Kortendick. A very simple program illustrating the use and speed of assembly language with the PET.
3. DAZZLER2-Gary Walker. Blinks your screen from one full screen of optical illusion type design to a different one.
4. DEMO 3.0-Walker. Includes a very neat clock routine as well as drawing pictures of Startrek Enterprise and Star Wars robots.
5. DEMONSTRATION/ALTAIR-Computer Notes JAN 78. Must own the source. A simple demonstration of what the computer (such as Altair) can do. Does not use neat graphics, animation, sound, etc.
6. DRAW 1-Peoples Computers Nov 77. Allows you to draw on the PET screen very easily. Must own the source.
7. KALEIDESCOPE-R-Peoples Computers June 78. Mod by Mike Richter. Very neat graphic display with the "freeze the picture" option.
8. KALEIDESCOPE-S-Sphinx. Similar to the above but allows you to input numbers which determine what type of display you get.
9. KEYBOARD DEMO-PET Paper. Draws a picture of the keyboard on the screen and lights up what ever keys you hold down. Great for testing a second keyboard with the PET.
10. SNOOPY DANCE-R Julin. Draws a picture of snoopy and then animates his feet.
11. STAR WARS PICTURES-Kirk Blum. Vader, R2D2...

EDUCATIONAL

1. ADDING WITH BLOCKS-Thorwald Esbensen. 1st grade level pictorial addition.
2. ADDITION GAME-PET Paper.
3. ALPHABETIZING-Thorwald Esbensen. For use with small children who are learning to alphabetize words.
4. ANIMAL-Basic Computer Games. Mod by Tim Onosko for Data tape use. The PET will guess what animal you are thinking of. Must own the source.
5. BID (MATH)- Thorwald Esbensen. Math practice made fun. Bet some of your points that you will get the next question right.
6. CLOCK (PICTORIAL)-Thorwald Esbensen. Draws a picture of a clock on the screen. Small children then must input what time is shown.
7. DECIMAL DEVISION-John Fultz.
8. GRADES-PET Paper. Perfect for a teacher. Input grades for your students for several tests, etc, and PET will tell you their averages.
9. HAIKU-Ed Steinfeld. Writes computerized Haiku.
10. HANGMAN/SOUND-Chris Sommers. The classic game of guessing the secret word. Use your vocabulary words for extra practice.
11. HISTORY QUIZ-Jim Stanley. Can you answer these history questions?
12. LETTER MATCHING-Thorwald Esbensen. For use with small children. It prints a random lower case letter on the screen. The user must hit the corresponding key.
13. LETTER SEQUENCE-Thorwald Esbensen. For use with small children. It prints a random letter on the screen. The user must hit the key of the next letter in the alphabet.
14. MATH GAMES-Data Systems.
15. MATH QUIZ-PET Paper.
16. MORSE CODE TUTOR-Harvey Sherman. Drills you in morse code. See his program BRASS POUNDER under USEFUL for a version that puts out the code with sound via our user port convention.
17. RHYMING WORDS-Thorwald Esbensen. Can you tell if 2 short (3 letter words) words rhyme?

18.SPEED READING-Harvey Sherman. How fast can you recognize a string of numbers?
19.SPELL-E-Thorwald Esbensen. Spelling test program.
20.SPELLING TEST-Jon Staebell. Spelling test program. (different way of doing it)
21.STATES & CAPITOLS-Terry Laudereau. Very good example of User Oriented, with interacting lines all throughout the program.
22.STATE CAPITOLS/SOUND-Kilobaud 3/78. An example of how easy it is to add sound to a program and how it enhances it immensely.
23.TRIANGLES-Nancy OBrien. Lists the side lengths of perfect triangles.
24.WILBUR MATH-Gary Walker. Displays math problems in huge digits.

MUSIC

1. MUSIC KEYBOARD-Tim Onosko. Turns your keyboard into an electric piano of sorts.
2. MUSIC MISTRO-Tim Onosko. Play songs with your PET.
3. MUSIC AT RANDOM-Tim Onosko. Generate real computer music.
4. PET SONG 3.1-Ed Toy. Plays 3 Bach pieces. Very good.

SIMULATIONS

1. ART AUCTION-Foreman. Buy and sell paintings and try to come out ahead.
2. BANK LINE SIMULATION-Advanced Basic. Simulates the length of lines and number of people served at a busy bank. Non interactive. Must own the source.
3. BROWNIAN BALL- Jim Breck. Simulates a random motion on the screen.
4. ELIAZA 5-Creative Computing June 77. Must own the source. Have your PET psycoanalyze you. It will carry on a very interesting dialogue with you.
5. HAMURABI-Basic Computer Games. Must own the source. See how well you can rule a country.
6. HAMURABI-Personal Computing #1. Must own the source. Another version.
7. LIFE-Bartonsmith. Simulates population dynamics. A classic program.
8. LUNAR LANDER-OBrien. See if you can land a spaceship on the moon.
9. MARKET-PCC First Book of Computer Games. Must own the source. One of my favorites. It gets you thinking. 2 people participate and try to outdo the other. Each is head of a company selling the same product. They each enter how many of this unit they will produce, how much they will advertise, and what price they will set as retail price. PET analyzes what would probably happen in a normal marketplace. Then the results are printed and each tries again. This continues until one goes bankrupt or breaks 12 million dollars in assets.
10.STOCK MARKET-101 Basic Computer games. Must own the source. This is a rough simulation of how buying and selling stocks works. You can have holdings in about 6 different companies.

USEFUL

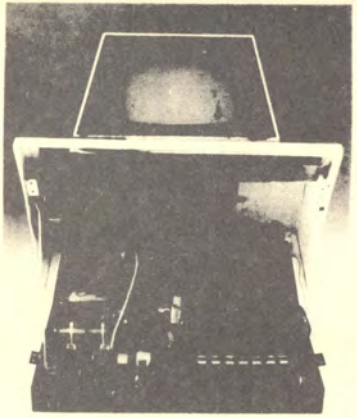
1. APARTMENTS-Gary Walker. For use when buying and selling apartments.
2. AUTOMATIC LINE NUMBERER-Len Lindsay/Pete Weiler. Have the PET automatically write the next line number for you when you are writing a program. Change two numbers in this program and it becomes an AUTOMATIC LINE ERASER.
3. BENCHMARK SERIES-Len Lindsay. See how fast your PET really is. This program is set up to be able to run several different tests...your choice which ones. You can add many more tests into this choice.

HINTS: ALWAYS REWIND A BRAND NEW TAPE BEFORE USING IT THE FIRST TIME.

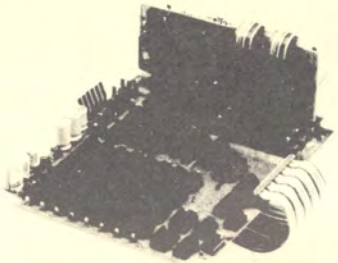
USEFUL (continued) $1 per program copying/handling fee

4. BIG ALPHABET-Tim Onosko. Prints what ever letter you type in as a huge leter on your screen. The letters are very rough letters.
5. BIORHYTHM-TV-Sphinx. Graphics oriented for use with your PET's video screen. Horizontal biorhythms.
6. BIORHYTHM-P-Personal Computing Nov 77. Must own the source. Prints your biorhythm vertically and can be used with a printer.
7. BIORHYTHM-F-Ken Finn. Uses very few lines of program to do a biorhythm.
8. BRASS POUNDER-Harvey Sherman. An excellent program. It SENDS Morse Code. You can vary the words per minute that it sends your message. Just type in the message, then the PET sends it all at once. Bonus feature***You can use this program to practice learning morse code. PET will send a character and you then type the letter. If you are wrong PET will send the same letter again. If wrong 3 times PET tells you what the correct letter is. NOTE: This program use a speaker hooked up according to the convention set in the July PET GAZETTE, using pins M & N of the user port.
9. BUDGET 4-John Coppaye.Set up your budget with PETs help. Provisions for over 30 catagories and several wage erners.
10. CLOCK(LED circles)-John.Coppaye. Draws a picture of a wall clock using a little dot for each of the 60 positions. Their are two concentric circles, one for seconds and the other for minutes. You can tell what time it is by which dots are lit up. NOTE: It looks like this program has a lot built into it. Look at its listing. As it displays the correct time it also can simultaneously display in digits the correct time in PARIS or any other time zone. Also at the same time it can have an alarm set, which goes off at the set time. In addition it has provision for appointment times. It looks like it also has an ability to do base conversions??? (HEX/DEC/BINARY)***Tell us what you find.
11. CONVERT(Polar/Cartesian)-Jon Staebell.
12. CORE DUMP-Fred Schwilk. See what is in PETs memory.
13. DECISION MAKER-Kilobaud July 77. This program will help you make a decision. You tell it the choices you have and what criteria you will use to judge the best choice by. A really good program. Must own the source. Submitted by Pete Weiler.
14. DIGITAL CLOCK-Len Lindsay. Displays the correct time in huge digits on the screen. Provisions included for printing messages under the time and for a different message every minute, or you could set a certain time for a message to appear.
15. DISINTERPRETER-Pet User Notes #3. Tells you what is in the PETs memory. Must own the source.
16. EMPLOYER TAX-Gary Walker. Figures tax.
17. FILE MANAGER-Cumberton. A beautiful job of manipulating a data tape. You can read and write data tapes reliably with this program.
18. FINANCIAL ANALYSIS-John Coppaye.
19. FORMS DEMO-PET Paper. Demonstrates how to drqw a form on the screen and then go and fill in the information.
20. GLOBAL-Gary Walker. Pick your points on the globe and find the distance.
21. GRAPH-Martin Hoffheinz. Draws a bar graph for several different amounts.
22. HEX/DEC CONVERSION-Randy Julin. Convert Hex to Decimal and Decimal to Hex.
23. HOUSEHOLD FINANCE-Interface Age Dec 77. A very good start at keeping track of you finances.
24. LIFETIME-John Coppaye. What is your life expectancy? PET asks you several questions and then tells you how long you may expect to live.

REMEMBER: DON'T TRY TO USE RUN OR ANY OTHER RESERVED WORDS AS A VARIABLE



EXPANDAPET



Mounts Inside or Outside the PET

UP TO 32K RAM
SOCKETS FOR EPROM
EXTRA PARALLEL I/O
FLEXIBLE SERIAL I/O
S–100 I/O DRIVERS

The EXPANDAPET is a general-purpose expansion system for the Commodore PET and other 6502 Computer Systems (e.g. KIM, VIM, and APPLE). It consists of a printed circuit mother board with an array of dynamic memory chips and a controller for invisible refresh. The board also contains its own DC power supplies and buffers to drive several plug-in daughter boards.

STANDARD SYSTEM COMES BUILT AND TESTED WITH:

* 16K Low Dissipation RAM
* Mounting Slots for 4 Option Cards
* Daughter board containing:
  Sockets for 4K EPROM
  2 Parallel I/O Ports with Handshake
  ..... $435

SYSTEM AVAILABLE WITHOUT DAUGHTER BOARD $395

OPTIONS:

* 8K Additional Ram $110
  (Gives 32K total RAM with 8K PET)
* 16K Additional RAM $200
  (Gives 40K total RAM with 8K PET –
* Additional EPROM and I/O Board Sockets for 4K EPROM and 2 Parallel I/O Ports with handshake $50
* S-100 I/O Driver Board Connects via a cable to an S-100 Card Socket and generates 8080 type Input-Output instructions $50
* Experimenter's Board
  Blank board with holes for your own custom circuitry $20

EPROM PROGRAMMING:

An EPROM Programmer will be available for the PET to program 2708 or 2716 EPROMS for the EXPANDAPET (or for other uses).

Also a service will be offered to program EPROMS from your PET tape.

CONVENIENCE LIVING SYSTEMS

648 SHERATON DRIVE

SUNNYVALE, CALIFORNIA 94087

(408) 733-0688

USEFUL (Continued) $1 per program copying/handling fee

25.LOAN AMORTIZATION-Gary Walker.
26.LOANS 2-Gary Walker.
27.MONITOR-LOMONDISS-PET Paper.
28.MONITOR-HIMONDIS-PET PAPER & Sphinx.
29.MULTIPLE PRECISION HEX ARITHMETIC-Mike Richter.
30.MULTIPLE REGRESSION-Harvey Sherman.
31.PRIME NUMBER GENERATOR-Steve Kortendick. Has provision to save the prime numbers automatically on a data tape.
32.READABILITY-Gary Walker. Type in a few lines from any text and have the PET tell you how readable it is.
33.RENUMBER-Randy Julin. An excellent idea. Does not renumber the GOTOs and such.
34.RENUMBER AND UNLIST-PET Paper. Looks excellent, but haven't had time to fool with it yet.
35.SORT BY ABC's-Jerry Panofsky.
36.SORT ROUTINE-PET Paper.
37.TAPE COPIER-Gary Walker.
38.TAPE LIB.-Ken Finn. Store several programs on one long tape. Use this program by saving it first on the tape. It then allows you to use the fast forward on the tape recorder and locate your program by time. It calculates how long it should take to get to your program and stops just before it gets there. Neat idea, possibly needs some altering for your application.
39.TYPEWRITER 6.1-Mike Richter. A mini wordprocessor. A very good program.

CARD GAMES

1. ACEY DEUCY-101 Computer Games. Must own the source.
2. ACEY DEUCY-Jon Staebell. Graphic display.
3. BLACKJACK 2.1-Sphinx. Great graphics.
4. POKER-H-Dave Howe. Great Graphics. You play against the odds.
5. SPADES-Raymon Revis.
6. WAR-Tim Onosko.

GAMES

1. AIR WAR-Gary Walker. No graphics.
2. BACKGAMMON BOARD-Dave Mehaffy.
3. BATNUM-101 Computer Games. Must own the source. Battle of the numbers.
4. BATTLESHIP-R-Mike Richter. PET tries to sink your ships. You must sink PETs ships first to win.
5. BATTLESHIP-W-Kilobaud July 78. Submitted and modified by Pete Weiler. Must own the source. Another version of the classic game.
6. BLACK BOX-Data Systems.
7. BLOCKADE-Jim Stanley. Often seen in video arcades. (similar to SNAKE and WRAP TRAP)
8. BOGGLE-Mike Richter. Semi computerized game of scrambled letters.
9. BREAKOUT/SOUND-Randy Julin. Often seen in video arcades and used to demonstrate the APPLE computer. An excellent program.
10.BREAKOUT-mod by JK Johnson. Uses Machine language to speed things up somewhat. No sound.
11.BUDGET-Best of Creative Computing Vol 1. A game where you try to guess how much money to budget for a trip.
12.CHASE/SOUND-Chris Sommers. An excellent version of the famous game of chase. Great sound effects. Try to keep away from the robots who are chasing you. Watch out for the electic post. ZAPP

STARTING NEXT ISSUE: READERS REPORT
PLEASE SEND US YOUR COMMENTS ON PRODUCTS AND COMPANIES YOU DEAL WITH. PLEASE DOCUMENT ANY COMPLAINTS IF POSSIBLE.

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These and many more programs are on my latest list. To be released September 15 are a Mailing List Program and a Home accounting program ($12.95 each)

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GAMES (Continued) $1 per program copying/handling fee

13.CHECKERS-Basic Computer Games, Mod by Harvey Sherman. Challenge your PET to a good game of checkers. Beautiful graphic representation. Watch the pieces move. Very enjoyable.Must own the source.
14.CONCENTRATION/SOUND-Tim Onosko. As seen on TV, the memory game.
15.CRYPTOGRAMS-Personal Computing Aug 78. Must own the source. PET helps you creat cryptograms.
16.CRAPS-101 Computer Games. Must own the source.
17.CRYPTO ONE-Tim Onosko. Similar to Hangman only it shows you the jumbled word.
18.CYBERCHIPS-101 Computer Games. Must own the source. A learning program. It learns from its mistakes.
19.DARTS-PET Paper.A dart throwing game.
20.DEEPSPACER-Duncan Langford (from England).No graphics.
21.DEFLECTION-PET User Notes #3. A good game. Must own the source.
22.DEFLECTION/MINES-Pete Rowe. Similar to the above game, only as time passes mines are randomly placed about the screen.
23.DEPTH CHARGE-Best of Creative Computing Vol 1. Must own the source. No graphics.
24.DOGFIGHT-PET Paper. No graphics.
25.DOT RACE-Randy Julin. Has some bugs in it. Animated.
26.FOOTBALL-S-Jon Staebell. You play against the computer.
27.GAMEBOX #1-Peoples Computer Company. Submitted by Gary Walker. Must own the source. Includes: Hurkle, Dragon Island, Chomp, and Guess a Number. Good for kids.
28.GOLF-101 Games. Must own the source. No graphics.
29.GOMOKU-Roy OBrien. You vs the PET. The PET is a very slow player.
30.GUESS (HI LO)-Randy Julin.
31. HEXAPAWN-101 Basic Computer Games. Must own the source. A learning game.
32.HI LO-Ed Steinfeld. You can guess what number PET is thinking of or PET can guess what you are thinking of.
33.HUNTER-Randy Julin. Animated. Hit the targets. Try for a new high score.
34.HURKLE-PCC BOOK of Computer Games. Must own the source. This is one of the games included in GAMEBOX #1.
35.JUMBLE-Martin Hoffheinz. Type in up to 6 letters, numbers, or symbols and PET will tell you every possible combination.
36.KLINGON CAPTURE-Midkey Ferguson. Capture the Klingon.
37.LEM-Best of Creative Computing Vol 1. Must own the source. Land your LEM on the moon without crashing.
38.LUNAR LANDER-Gary Walker. Similar to the above.
39.MAGIC SQUARE-Best of Creative Computing.Vol. 1. Must own source.
40.MASTERMIND-Pete Weiler. The popular game of logic and deduction.
41.MATCHES-101 Basic Computer Games. Must own the source.
42.MAXIT-Henry Saal. A very interesting number game. You vs. the PET. The PET plays a very good game and will keep you thinking. A good strategy game.
43.ORBIT-101 Computer Games. Must own the source. Try to shoot down the Romulan Space craft orbiting your planet before they escape the gravitational pull.
44. THRU 49.
NOTE: Would some brave soul like to get all 6 and find the best parts of each and come up with a super othello???
44.OSERO 6.3-Gary Walker. Pretty good playing. (also known as Othello)
45.OSERO (OTHELLO)-Randy Julin.
46.OTHELLO-Foreman.
47.OTHELLO FOR 1-PET Paper.
48.OTHELLO-S-Harvey Sherman from Byte Oct 77.
49.OTHELLO-JK Johnson. (just arrived, supposed to be better)

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GAMES (Continued) $1 per program copying/handling fee

50.PETALS AROUND THE ROSE-Personal Computing Aug 78. Must own the source.
51.PET PONG-John Staebell. A new twist on the old tv ping pong games. 2 players, each with a paddle on their side of the screen try to keep the ball from hitting the wall on their side. The ball randomly curves up and down as it moves across the screen, never hitting the top or bottom.
52.POP SHOP/SOUND-Sphinx. A very good target game with neat sound effects.
53.RACETRACK 2-PET User Notes #3 with additions by Dr. Daley. Must own the source. Animated.
54.REVERSE-Gary Walker. Uses the graphic capabilities to draw huge numbers which makes the game much more interesting.
55.ROAD RACE-Best of Creative Computing Vol 2. Must own the source.
56.ROAD RALLY-Rick Lehr. No movement.
57.ROAD RALLY-Randy Julin. No Graphics.
58.ROULETTE-101 Computer Games. Must own the source. No graphics.
59.ROULETTE, PET-Personal Computing July 78. No graphics. Must own the source.
60.RUN!-Jon Staebell. Animated. You must run away from the BLOB who is chasing you in real time.
61.SEA WAR-Paxton. No graphics. You must sink the enemies ships before yours are destroyed.
62.SHOOTING GALLERY-Pete Weiler. Animated. You shoot at the moving targets with your gun which can aim any of 3 directions. Very interesting.
63.SLOT MACHINE-R-Mike Richter. A very good version. A good looking picture of a slot machine is drawn on the PET screen. Hit return and the handle is pulled down, the 3 windows show the different symbols flashing by as they twirl around. If you win coins actually (almost) come out the slot on the bottom of the machine. If you have a beeper it beeps once for each coin that pops out.
64.SLOT-Tim Onosko. Another version.
65.SNAKE-Pete Rowe. An excellent animated game. See the computer play against itself, or you can challenge the computer, or 2 people may play against each other. This game is often found in video arcades. Each player has a "snake" which is continually moving and which they must "stear" so that it does not hit the walls on the border of the playing field, hit the other players snake, or hit your own snake. Who ever can last the longest wins.
66.SPACESHOOTER-Dave Howe. Similar to a sceen in Star Wars. There is a moving plane which you try to shoot down. First you must Manuver your guns to get the plane smack in the middle of your sights. Animated & Graphics.
67.STARS-Peoples Computers Jan 78. Must own the source. Try to guess what number PET is thinking of. After each guess you are told how close you were by the number of stars PET prints out for you. 1 star is not too close, 6 stars if very close.
68.STARTREK-M-Randy Julin. This is an animated, movement version.
69.STARTREK/SOUND-Chris Sommers. This is a version with excellent sound effects.
70.WIDGET-Data Systems.
71.WRAP TRAP-B.H. Miles (from England). Similar to SNAKE but with no borders on the playing field. If you run off the top you come back in on the bottom. Animated & graphics. Very good.
72.WUMPUS-Kilobaud 2-77. Must own the source. Try to get one Wumpus and then escape from the tunnells alive. No graphics. A pretty good game.
73.YAHTZEE-Pete Rowe. An excellent computer version of the famous dice game. Graphics. See the dice roll. Your score card is always shown on the top of the screen.

-74-

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PET CASSETTE EXCHANGE

MAKE A COPY OF THIS

For each program that you send us which we do not already have we will send you one program of your choice from the list in this issue. If the program you are requesting is noted as being taken from a listing, then you must also own that source. You may send us programs adapted from magazine or book listings as long as you tell us the source.

We hope that everyone will be adding sound effects to their programs now. See our special section on Music for more information on it.

If you improve any program we send you please send us a new improved version to update our Exchange.

PET CASSETTE EXCHANGE FORM

Note: please photocopy this page if you wish to leave your GAZETTE intact.

I am submitting the following programs. They may be used by the Microcomputer Resource Center and the PET CASSETTE EXCHANGE.

PROGRAM TITLE	AUTHOR	SOURCE

In exchange for these I would like the following: I am enclosing a $1.00 copying and handling fee for each program I request. I own the source listing of any as noted.

PROGRAM TITLE	SOURCE

CHECK ONLY THE BOXES THAT APPLY:

- ☐ Programs already on the exchange that I wrote may be sold, with a 25% royalty sent to myself.
- ☐ Programs I am submitting that I wrote may be sold as well as exchanged, with a 25% royalty sent to myself.
- ☐ Any of my programs may be sold, with the royalty to be used as a donation towards the Center.
- ☐ Programs I am submitting are for exchange only, not for sale.

I own all source listings for the programs I am requesting above as listed in the Aug/Sept 78 PET GAZETTE.

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